Southwestern Medicine

OFFICIAL ORGAN OF

ARIZONA STATE MEDICAL ASSOCIATION
NEW MEXICO MEDICAL SOCIETY
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

VOL. XIX. SEPTEMBER, 1935 No. 9

ANNUAL SUBSCRIPTION $2 SINGLE COPIES 20 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.
"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

CALCIUM METABOLISM AND ITS ROLE IN THE HEALING OF DISEASED AND INJURED TISSUES

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When tissue in a living animal is destroyed healing may take place by regeneration or by repair. In regeneration, the destroyed tissue is replaced by a similar tissue. In repair, the destroyed tissue is never replaced, but the part is crudely mended by the remaining portions of the tissue being drawn together by strands of newly-formed, white fibrous tissue. This process is much like darning a hole in a colored stocking with white thread, and the effect is just about as unsightly.

Some of the lowest forms of life have the power of regenerating lost parts in entirety. In man, only such comparatively simple tissues as bone and cartilage are regenerated. Repair of higher tissues—muscle, lung and brain—is effected by the formation of scar tissue[1].

Regeneration of Bone: The bony framework of the animal body appears to the uninformed to be composed of a lifeless, inert material akin to that of the steel girders which support a large modern building. Indeed it is difficult for the trained mind of the physician to entirely ignore these early impressions, and to remember that bone, like all other parts of the living body is subject to the constant tissue change which is indicative of life itself. So long as life continues, calcium is being constantly removed from bone, and new calcium deposited in its place. Bone is no more a permanent structure than is muscle, nerve or blood. The calcium molecule of bone is no more permanent than the protein molecule of muscle[2].

Bone, like other animal tissues, derives its nourishment (calcium) from the food. This calcium is absorbed from the digested food in the intestinal tract, in the form of calcium phosphate. In normal blood, the calcium level remains usually between nine and 11 mgs. per cent. The calcium is precipitated from the blood into bone, where it exisits chiefly as the tertiary phosphate and the secondary carbonate. The waste calcium is carried in the blood to the bowels and kidneys where it is excreted as calcium phosphate[4].

Vitmin D: The extensive investigations of Hess and many others in the study of rickets has proven conclusively that vitamin D is a most important factor in calcium metabolism. It is now generally believed that the functions of vitamin D are to facilitate the absorption of calcium and phosphorus from the intestine, and to maintain the level of calcium and phorphorus in the blood.

Therapeutic doses of vitamin D with a proper calcium and phosphorus content in the food, will raise the level of calcium in the blood, and cause a flow of calcium to the bones. Very large doses of vitamin D with high calcium diet will cause large quantities of calcium to be absorbed, raise the blood calcium above normal, and cause calcium to be deposited in blood vessels, kidneys, intestines and lungs. Large doses of vitamin D with a low calcium diet will cause a flow of calcium from the bones to maintain the calcium level of the blood, and result in the bones becoming as soft and fragile as in severe rickets[6].

In the human body vitamin D is formed from the ergosterol of the skin by the action of ultraviolet rays. It has been definitely proven that ultraviolet radiation constitutes a specific cure for rickets, by stimulating calcium metabolism and causing a flow of calcium to the bones. A similar effect can be obtained by administering vitamin D therapeutically in cod liver oil, egg yolk and artificially irradiated substances.

One of the most striking manifestations of the powerful effect of sunlight on calcium metabolism is revealed in a study of the geographical distribution of rickets. For the most part this disease is confined to north and south latitudes 40-60 degrees. Even in these latitudes rickets is not prevalent in the summer months, when the children spend much time scanitly clad out of doors. "It is the lack of ultraviolet light that determines the incidence of the disease. Where there is an abundance of solar ultraviolet rays, rickets is unknown".

Tuberculosis is another disease of the bones in which stimulation of calcium metabolism by ultraviolet radiation has shown marked beneficial effects. A study of large series of x-ray films extending over many years, at the Rollier Clinic in Leysin, Switzerland, strongly indicates that solar light produces as marked effects in regenerating bone destroyed by the action of the tubercle bacillus, as it does in curing rickets.

Calcium metabolism is most important in tuberculosis, not only in the ossification of diseased bone, but also in the calcification of caseous lesions in soft tissues. Most frequently calcium is deposited in poorly nourished or diseased tissue. The caseous necrosis in foci of tuberculosis is particularly prone to calcification. Calcium salts from the blood are attracted to the caseous mass and are deposited as calcium phosphate and calcium carbonate, in the same relative proportion as in normal bone. In some instances, where the caseous matter is penetrated by living fibroblasts, these cells so influence the reaction that ossification, instead of calcification, takes place. Ossification is frequent in healed primary foci of tuberculosis in the human lung[7].

Since we began to use heliotherapy in all cases of pulmonary tuberculosis, our x-ray films show a much larger proportion of lesions healed by calcification.

We have now under treatment a case of Paget's disease (osteitis deformans) in which heliotherapy seems to be having a very beneficial effect. Already, there seems to have been regeneration in the areas of excessive bone and resorption in the areas of excessive bone formation.

From the standpoint of physiology, ultraviolet radiation is indicated wherever bone regeneration is required. In any disease characterized either by bone regeneration or execessive bone formation, a careful study of the calcium metabolism should be made.

Repair by the Formation of Scar Tissue: The origin of scar tissue has been a much debated question among pathologists for many years. Two schools of thought developed among research workers. The first school advocates the intracellular origin of scar tissue, claiming that its fibres are formed by a modification of the peripheral cytoplasm of certain cells called fibroblasts. The second school contends that scar tissue is developed from an exudate secreted by the cells and is definitely intercellular in its origin[8]. During the past several years, largely through the extensive and painstaking work of Baitsell and his coworkers, the intercellular theory has been gradually gaining favor, and today seems to be rather generally accepted on this continent[9].

Baitsell's studies seem to indicate that the exudate secreted by the cells of tissues reinfected with tubercle bacillus (an exudative inflammation characteristic of these allergic tissues) coagulates by a process apparently identical with coagulation of the blood. In this way the exudate between the tissue cells is transformed into fibrin, apparently identical with that found in a blood-clot. "The character of the exudate at this stage of the infection . . . is essentially that of a fibrin net . . . composed of very fine filaments such as would be found in any normal preparation of coagulated blood plasma." "Long, delicate and typical wavy fibrils" are formed "directly from the fibrin elements of the exudate . . . just as has been previously noted in the case of clotted blood plasma." "A further stage in the process of fibrosis is . . . the general tendency of the individual fibrillae to be drawn together, so that they lie parallel to each other and thus form bundles of fibres, which often reveal the curved or wavy appearance so characteristic of certain types of connective tissue." "This . . . fibrosis is to be regarded as another step beyond that of coagulation. In a word, certain body fluids such as blood plasma, lymph and exudate undergo coagulation. The gel thus formed has, under favorable conditions, the further possibility of being transformed into a fibrous substance."[8] By the use of the Mallory stain,

Baitsell has shown that there is later a chemical transformation of these fibrous elements of the exudate into highly developed collagenous fibres, characteristic of white fibrous tissue.

If we accept these conclusions of Baitsell that the formation of scar tissue is apparently identical with coagulation of the blood, we naturally turn to the extensive studies on the blood, in search of the true nature of coagulation.

Coagulation of the Blood. Out of the enormous amount of research work which has been done on the coagulation of the blood, a few facts seem to have been definitely established. "The phenomenon would seem to be essentially one of colloidal aggregation under the influence of calcium electrolytes." "The final step in the coagulation consists of a reaction between two substances thrombin and fibrinogen."

"Fibrinogen . . . occurs as such in the circulating blood. It appears to be particularly formed by the liver." "Thrombin . . . does not occur as such in the blood." "For its formation cadcium salts must be present in a certain physical state." "Two other factors are required for the formation of thrombin, in addition to calcium." "The first of these occur in the blood stream and is known as pro-thrombin. " Its main sources are the bone marrow and the blood platelets.

"The second factor that is necessary for the formation of thrombin is thrombo-kinase." It is found in blood platelets and tissue juices. "When the blood is shed . . . there occurs en masse an alternation of platlets which adds more pro-thrombin and thrombo-kinase to the blood, while additional amounts of the latter are also added from the tissues of the wound." "Once thrombin is formed in suitable amounts, it converts the fibrinogen, in solution in the plasma, into the insoluble fibrin or clot"[10]

It is at once apparent that two essential factors in coagulation of the blood are blood calcium and blood platelets. With a deficiency of blood platelets, either in number or in function, or a deficiency in the calcium content of the blood, satisfactory coagulation will not take place.

We have already referred to the effect of ultraviolet radiation on the calcium level in the blood. Further studies by other research workers have shown that ultraviolet light produces an increase of blood platelets in the rabbit[11], and that with increase of platelets the coagulation time of the blood is diminished[12]. It has also been demonstrated that administering irradiated ergosterol to white mice produces a marked increase in the blood platelets and a corresponding decrease in the coagulation time[13].

Since the underlying factor in scar tissue formation seems to be a coagulation of intercellular exudate, apparently identical with coagulation of the blood, and since coagulation of the blood depends largely on the presence of an adequate amount of calcium and a sufficient number of blood platelets, and since vitamen D will increase the level of blood calcium and the number of blood platelets and so decrease the coagulation time, we feel justified in concluding that solar light probably plays an important role in scar tissue formation.

Our clinical experience, extending over a number of years, indicates that tuberculosis of the lungs, glands or kidneys seems to heal more quickly and completely, when heliotherapy and an adequate amount of calcium in the diet is added to rest and other recognized measures of treatment. We will later publish statistics to confirm these clinical observations.

SUMMARY

The Three R's of Healing: Resolution, Regeneration, Repair. Resolution is seen in pneumonia and is not discussed in this paper. In man, regeneration is confined to comparatively simple tissues such as cartilage and bone; the higher tissues are repaired by the formation of scar tissue.

For the production of bone in the animal body, two substances are necessary, calcium and vitamin D. The source of calcium is the food, and the supply can be carefully regulated by diet. The amount of calcium available for bone production depends on the calcium level in the blood, and this can be calculated very accurately by accepted laboratory methods. There is one, and only one, known method of producing vitamin D, and that is by the action of ultra-violet rays on ergosterol. This reaction may be brought about by the direct effect of the ultraviolet rays on the ergosterol of the skin, or by feeding oils or other foods contain-

ing ergosterol, which have been natuarlly or artificially irradiated. By varying the amount and proportion of these two substances, calcium and vitamin D, it is possible to control bone production and bone resorption in the animal body.

Scar tissue is probably formed by a coaguletion process, apparently identical with coagulation of the blood. Calcium and blood platelets are essential factors in blood coagulation. Vitamin D will stimulate calcium metabolism, promote blood platelet formation and decrease the coagulation time.

CONCLUSIONS

Ultraviolet radiation promotes calcium metabolism and so is important in the regeneration of bone, and in the calcification of caseous lesions. It also probably assists greatly in the formation of scar tissue by raising the blood calcium level and by increasing the number of blood platelets.

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DISCUSSION

(Dr. Watson's paper was published last month.)

DR. WATKINS: In commenting on Dr. Flinn's paper, I should like to express my appreciation for the stress placed by Dr. Flinn on the physiology of the subject. I feel we can not get back to the principles of physiology too closely. The study of calcium metabolism is of increasing importance as the recovery of all diseased tissue is dependent in part upon this element. I should like to request that you bear in mind the points brought out in Dr. Flinn's paper as a background for my paper on "Bone Physiology in Relation to Traumatic Injuries," which is to be presented this afternoon. Dr. Flinn has covered the subject necessary.

Dr. Watson's paper, "The Curability of Tuberculosis of the Bowel" has also been most ably presented. I am also going to digress in my discussion on this paper and refer to a phase of the subject which comes close home to me. I refer to the part of the radiologist in diagnosis. You men who make your own x-rays are looking for a specific trouble with all symptoms and findings in your possession. I should like to suggest that you give the radiologist on whom many of you call for his work, the same information you possess. Let the radiologist know that you suspect tuberculosis of the bowel so he can look for that. The mucous membrane of the bowel is primarily a study in physiology. Therefore if intestinal tuberculosis is suspected, inform the radiologist of that fact. Until our technique was improved and perfected, we all had to depend upon symptoms. Now the condition can be visualized. The radiologist can find such a condition if he is informed that it is suspected. We would not find tuberculosis through the rectum ordinarily for we would not be looking for it. The average physician has too much confidence that the x-ray will reveal everything. This confidence is greatly appreciated by the radiologist, but a complete revelation will not come about unless the technician is supplied with full particulars.

Referring again to my appreciation for the consideration given physiology in these papers, I wish to state that the physiology studied in the medical schools is not what the physician is compelled to study now. I feel we should more and more consider physiology on at least an equal basis with pathology.

Both of these papers are of great importance and give members of the profession new and helpful, as well as interesting, problems to consider.

DR. FRED G. HOLMES: Both of these papers were splendidly prepared and presented and the doctors are to be congratulated. I will not attempt a discussion of Dr. Flinn's excellent paper except where he and Dr. Watson deal with the subject of intestinal tuberculosis. One is struck with the disagreement in treatment of this condition as presented by these two widely experienced physicians. If I caught their viewpoints rightly, Dr. Flinn would use solar radiation in all such cases while Dr. Watson, though feeling its value in certain types of pulmonary tuberculosis, believes that it should not be used in the treatment of tuberculous colitis, in which condition he regards the artificial ultra-violet as produced by the mercury-quartz lamp to be a specific. On second thought, however, these differences are no more striking than those found between authorities in the fields of finance, religion or many others and reflect the varied experiences of the investigators under different circumstances.

I am thoroughly in accord with the conclusion suggested by Dr. Watsons paper that tuberculous colitis is a curable disease. His paper is valuable in again stressing this point and emphasizing its early diagnosis and treatment. Regarding the use of artificially produced ultra-violet light as a new and specific treatment for the condition, it seems open to question. Dr. Flinn stresses the use of solar radiation and my own experience leads me to similar conclusions. I bought my first mercury-quartz lamp in 1921 and have had several of them in use during the last 10 years. However, in our hands they have come to be less and less of a factor in the treatment of tuberculosis, either intestinal or otherwise. Solar radiation seems applicable for such cases and has been extensively used.

One is struck with the marked decrease in the incidence of advanced intestinal tuberculosis. The many cases with severe diarrheas, etc., with which the ordinary tuberculosis practice 15 years ago was replete, are much diminished. Why is this so? Is it due to the treatment of the intestinal condition per se? I believe not.

In pulmonary tuberculosis, the trachea pours its secretions containing tubercle bacilli into the alimentary tract. Germs find their way up and down. The incidence of beginning laryngeal and of intestinal tuberculosis has been reported as almost identical. Laryngeal tuberculosis in its most aggravated forms has been strikingly reduced in the last few years. Is this due to treatment directed specifically at the laryngeal condition? It would seem not as during this time, local treatment of the larynx has been largely abandoned with the exception of the electric cautery in certain conditions. What then has caused this decrease in severe laryngeal tuberculosis? More adequate treatment of the lungs, I believe, and in most cases this means more efficient closure of cavities. Larngeal tuberculosis is mentioned because it is little treated by ultra-violet radiation and being influenced by the same underlying condition, some inferences regarding intestinal colitis might be drawn.

The fight against laryngeal tuberculosis and similarly intestinal tuberculosis is won or lost on the battlefield of the lungs in large part no matter what treatment is used. It is very unusual to heal an intestinal or laryngeal tuberculosis in the face of an advancing pulmonary tuberculosis. On the other hand, it is exceedingly common to see either heal without specific treatment when the pulmonary tuberculosis has been improved by rest or specific treatment such as pneumothorax.

One must certainly use every method of proven value in handling tuberculous colitis—diet, medication, etc. To this is added a most valuable weapon as brought out in these papers,—that of ultra-violet radiation. I believe solar radiation is preferable where it can be obtained in sufficient amounts and with reasonable regularity. These all help in rendering tuberculosis more curable; but it seems that the deciding factor most commonly lies in what happens in the lungs. Our increasing ability to close cavities and heal the pulmonary tuberculosis has rendered the specific treatment of tuberculosis colitis less and less necessary.

DR. JAMES R. MOORE: Dr. Flinn has given most helpful and lucid exposition of the study of calcium metabolism. I was struck with Dr. Watson's preference for the violet ray. I trust it is not presumptious on my part to take exception to the statement made by Dr. Flinn that where there is an abundance of sunshine rickets are uncommon. Several years ago it was my privilege to practice in Egypt for a period of three or four years. There is a greater percentage of sunshine in the Valley of the Nile than there is in the Salt River Valley. I was amazed at the prevalence of rickets among the young children, and even among the adults, of that region. At first I was at a loss to account for it. It came to me that the custom of dress had a great deal to do with it all. The Egyptian woman's dress is closely woven material dyed a deep black, the dress enveloping the entire body as well as the greater part of the face. Out in the strong sun no part of the rays can reach the body and rickets result. Children ,as babies, are carried closely wrapped within the folds of these enveloping robes. Babies, too, are kept within the houses with little air and practically no light. Milk is also of very poor quality. The prevalence of rickets is easily explained when these facts are noted. When the children reach the walking stage they run outside, naked as the day on which they were born, and then receive a superabundance of sunshine. In conclusion I wish to state that these people respond well to the same therapeutics as employed in this country.

DR. WILKINSON: Something like 10 years ago, I bought three quartz lights from a young man who came into this state from Colorado selling these lights because of his great faith in their curative powers. This young man had had tuberculosis involving the bowels. He attributed his recovery to the use of the quartz light. I have found these lamps successful. All tuberculosis cases do not stand the violet ray at all well. The value of quartz is recognized for many conditions. Personally, I do not see why it is not more extensively accepted for treatment of tuberculosis.

DR. O'LEARY: In the Sanitarium at Long Island, New York, we learned that women are prone to swallow sputum. Men have always had, or assumed, the privilege of spitting willy-nilly. Women have always been reluctant to assume this habit, and many of the tubreculous swallow the sputum rather than expectorate even into the cup; tuberculosis finds its way into the bowel tract as a result. Dr. Edwin P. Kolb, superintendent of the sanitarium, has followed a routine diet and course of treatment which has been effective in these cases. A diet, consisting of no laxative foods but of plenty of cod liver oil and tomato juice, is routinely given. The quartz light is used for radiation. Here, where there is an abundance of citrus, I should like to see a routine diet of cod liver oil and the citrus juice used in conjunction with the quartz light and the observations reported at next year's convention.

DR. SCHOFIELD: I should like to state that I am interested in raising the calcium content of the blood by the use of vitamin D. At Boulder Dam we use gallons of irradiated oils in healing fractures. The level of calcium content is raised and healing made more effective.

DR. WATSON (concluding): I wish to congratulate and compliment Dr. Flinn on making an abstruse subject so very lucid and interesting. Discussion on my own paper has been rather of a disappointment to me in that I attempted to get over the idea that tuberculosis of the bowels is curable, rather than to stress a method of treatment. If I were to give any tuberculous person radiation, I should give solar except in intestinal tuberculosis. Artificial light is better for that.

DR. FLINN (concluding): Along with Dr. Watson I appreciate the discussions given. We assure Dr. Watson that the point of his paper was not missed. Dr. Watson's paper is a valuable contribution to the history of tuberculosis and will be recognized as such. It is because the two of us differ in the radiation used that this phase of the treatment came into the lime light. My reaction to the cases in Egypt as cited by Dr. Moore is that there has probably been a great lack of calcium in the diet of those people in addition to the lack of exposure to the sun's rays. I appreciate the contributory remarks of Dr. Schofield showing the value of calcium in other types of healing. Dr. Watson and I have been closely associated for a number of years. Our differences in methods of treatment have only served to keep this association permanently alive. Personally, I have come to the conclusion that there is more detriment brought about by use of solar radiation than by the violet ray. Manufacturers have learned that cooling systems must be used to offset the tremendous heat in connection with making lights. By the same principle, if you can cool your solar radiation, you can do away with its harmful effects. Choose the cooler seasons of the year and have the patient where there is a rush of air for the best results. We use solar radiation in this way and find it effective. I thank you for your complimentary attention.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.
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Professional Ethics

The United States Supreme Court in adjucating the case of an Oregon dentist versus the State of Oregon not only affirmed the right of the State to restrict professional advertising (an important decision) but also interpreted the meaning of professional ethics in language that is worthy of permanent record.

"The community is concerned with the maintenance of professional standards which will insure not only competency in individual practitioners but protection against those who would prey upon a public peculiarly susceptible to imposition through alluring promises of physical relief; and the community is concerned in providing safeguards not only against deception but against practices which would tend to demoralize the profession by forcing its members into an unseemly rivalry which would enlarge the opportunities of the least scrupulous. What is generally called the 'ethics' of the profession is but the consensus of expert opinion as to the necessity of such standards."

Prognosis of Melanotic Sarcoma

We were taught in medical school that: The prognosis of melanotic sarcoma is invariably bad; by the time the growth is recognizable dissemination by the blood stream has already taken place; surgery was a forlorn hope.

A much more hopeful doctrine is now promulgated[1]. Melanotic sarcoma is rare and the former pessimism may perhaps have been due to the fact that no writer on the subject had been able to amass sufficient practical experience. Mr.* Handley has seen, in addition to hopelessly inoperable cases eight or 10 cases in whom the sarcoma was but moderately advanced and among whom he had three successes. He points out that 50 years ago cancer of the breast was also believed to be a hopeless disease and that was because of the inadequate removal of tissue. It is now known that both diseases spread by early embolic invasion of the lymphatic nodes. The requirements which he lays down for removal of a melanotic sarcoma are as follows:

A circle of skin at least two inches in diameter centered on the primary growth; a circle of deep fascia four to six inches in diameter centered on the primary growth; an area of muscle immediately beneath the primary growth; a band of deep fascia carrying the trunk lymphatics from the primary growth to the nearest nodes; the set of lymphatic nodes immediately above the primary growth, together with a circular area of deep fascia surrounding them, and likely to be permeated; the set of nodes immediately above the first set of nodes, if these latter are obviously enlarged; and all these in one piece.

The adoption of such a surgical technique would bring results, he believes, at least as good as those now obtained in cancer of the breast.

1. Handley, S. Prognosis of Simple Moles and Melanotic Sarcoma. The Lancet, June 15, 1935, p. 1401.

*English surgeons prefer to be called "Mr.", however many degrees they may possess in medicine.

THE JUVENILE OSTEO-CHONDRODYSTROPHIES

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(Read before the Arizona State Medical Association, April 25-27, 1935.)

This is a group of deforming bone diseases of childhood and adolescence which are of interest and importance because they are not uncommon. Every practitioner should be familiar with this group as their early recognition with appropriate treatment is in many cases necessary to prevent serious permanent deformity and in all cases may relieve pain and discomfort. The name osteo-chondrodystrophy refers to the fact that it is a disease of both bone and cartilage due to faulty nutrition from faulty circulation. Until recently it was called osteochondritis. The reason for the change in nomenclature will be brought out in the course of the paper.

The bodies of short bones or the epiphyses of long bones may be affected. Between the diaphysis and epiphysis is the epiphyseal line. This is a narrow plate of cartilage from which growth in length occurs. Bones grow by two methods: The laying down of cartilage to be changed by osteogenesis into bone; and a growth of bone without intermediary cartilage forming from the innermost or deepest layer of the periosteum, the cambium layer. Periosteum covers all bone except joint surfaces so

long bones increase in diameter by laying down bone without cartilage. The clavicle, metacarpal and metatarsal bones differ from long bones of the arm and leg in that each has only one epiphysis and epiphyseal line instead of two. Large tuberosities—apophyses—as the greater and lesses trochanters and the tibial tubercle is a tongue-like extension downward from the proximal epiphysis but occasionally it has a separate center of ossification. The short bones, as the carpal and tarsal of the wrist and foot, do not have epiphyses; they increase in diameter by periosteal growth. The vertebrae grow by both methods, as do long bones. The spine, for practical purposes a many-jointed long bone, must increase readily in length; growth occurs in the cartilaginous joint surfaces. The joint surfaces, however, are not ordinary joint cartilage but are similar to the epiphyseal lines of the long bones with the same power of growth. The vertebrae increase in diameter by periosteal bone formation.

Epiphyseal lines close in adolescence and thereafter the epiphysis or head is not separated from the diaphysis or shaft by a cartilaginous plate but is one continuous cancellous bone and growth is at an end. Repair when necessary in case of fracture or other injury is by periosteal bone formation.

A fundamental characteristic of the group of diseases we are considering is that they affect bones only while cartilage is being ossified. Many bones of the body have been described as being so affected and new ones are being added to the list. Theoretically, the disease may affect any bone of the body except the membranous bones of the skull; they only are never cartilaginous. The bones commonly affected are the vertebrae, the proximal head of the femur, the tibial tubercle, the semilunar bone of the wrist, the metatarsal-phalangeal joints of the first and second toes and the scaphoid and internal cuneiform bones of the foot.

The disease has certain definite characteristics irrespective of the bone affected: (1) It appears at a definite age period which is variable for each bone occurring only after cartilage has begun to ossify; (2) there is always a decrease in density of the affected bone in the early stages of the disease and a decidedly increased density in late stages, with necrosis of the bone in irregular areas early and sometimes sequestral formation late when the circulation has been almost or quite cut off; and (3) deformity to a greater or less extent always exists. The spine and short bones of the wrist or foot show compression only, the proximal head of the femur both compression and separation and the tibial tubercle only separation. Deformity may increase until ossification is complete if pressure in the form of weight bearing is continued.

A short description of the commonly described forms of the disease in the order of being reported is as follows:

In 1903, Osgood of Boston and Schlatter, a German, simultaneously reported "Tibial Apophysitis." It is not uncommon, affecting mainly boys of 12 to 15 years of age, involving the tibial tubercle while it is undergoing ossification. Ossification begins usually at 12, and the epiphyseal line closes at 20 years; the active period of the disease then is between these years. The characteristic features are irregularity in density of the tibial apophysis with separation from the shaft through the epiphyseal line. This results in deformity through enlargement of the tubercle and widening of the epiphyseal line with more or less tenderness. The patellar ligament attaches to this tubercle and separation occurs through its pull in extension of the leg.

Kohler, a German, in 1908 described this disease of the scaphoid bone of the foot. It occurs in the fourth and fifth years of life because ossification of this bone begins about the fourth year. There is first an irregularity in density and then an irregularity in shape due to pressure which may proceed to the point where the bone is markedly compressed with greatly increased density. There is pain on walking and tenderness on pressure over the scaphoid without redness or swelling.

Perthes in 1910, and shortly afterward Legg and Calvé, all independently, reported what is usually designated as Perthes or Legg-Calvé-Perthes disease of the proximal head of the femur. It occurs between the years of one and 18, the period of ossification of this epiphysis. An irregular decrease in density is followed by a flattening of the rounded surface of the head with a widening of the neck which is probably due to end pressure, and a coxa-vara increase

in the angle of the neck on the shaft—due to downward pressure. Marked deformity will result, if weight bearing is allowed to continue, with so-called mushrooming of the head and at times a slipping of the epiphysis at the epiphyseal line. The deformity may limit markedly the movement of the joint.

Scheuermann of Copenhagen in 1921 described an abnormality of the vertebrae in adolescents of 12 to 20 years of age consisting of irregularities of the upper and lower margins with shortening of the anterior portion of the body resulting in a wedge-shape with the point of the wedge anterior. Calvé in 1925 described an abnormality in which there was compression of the bodies of the vertebrae to a marked degree in children of two to seven years. These are separate conditions. The ossification of the body of the vertebrae begins in the eighth week of foetal life while ossification of the vertebral epiphyses begins about the 12th year. Scheuermann's disease then is an epiphysitis affecting the ossifying epiphyses of the upper and lower borders while Calvé's disease is an affection of the ossification center of the bodies of the vertebrae. The different periods of ossification explain why Scheuermann's is a disease of adolescence while Calvé's is a disease of childhood. The deformity of Calvé's disease is much greater than that of Scheuermann's. The amount of deformity varies with the weight bearing being greatest in an active child or an adolescent who does heavy work or play or who is obese. Tenderness is present as well as pain on weight bearing in both conditions with rounded kyphosis in Scheuermann's disease and an acute kyphosis of the Pott's type in Calvé's disease.

Differential diagnosis is usually with tuberculosis. There is neither swelling nor fever and x-rays do not show actual loss of tissue but altered shape—a characteristic which is diagnostic as tuberculosis shows swelling, fever, and loss of bone tissue. Various conditions, however, must be considered as Kaufman says coxa vara, one of the outstanding characteristics of Perthes disease may be caused by puerperal osteo-malacia, senile osteoporosis, osteitis fibrosa, osteo-myelitis, arthritis deformans, fracture of the femur neck, traumatic loosening of the epiphysis and rickets. The patient's age with knowledge of the age at which ossification occurs together with other manifestations of the above diseases usually make the differential diagnosis comparatively easy.

A great deal has been written as to the etiology of this interesting and peculiar condition with many theories and considerable experimental work. The theories worth considering group themselves under the following headings: Infection, trauma, mal-development, embolism, glandular dysfunction, and altered blood supply.

The "itis" ending of the name osteochondritis, which until recently was the terminology used for this condition, infers an infectious origin. Phemister and others have been able to isolate organisms usually streptococcus viridans. The results, however, are far from uniform or convincing as to a universal infectious origin. In some cases tubercle bacilli have been isolated and the chronic course suggests a peculiar form of tuberculosis but the pathology seems too atypical for acceptance of this as the usual cause. Pathological sections usually show an aseptic necrosis.

There is a history of trauma in a large percentage of the cases and it is evident that trauma plays its part in the disease. In most cases, however, it is not the primary cause but it causes deformity after the bone is diseased.

Mau has said that "physiological studies have shown that during periods of growth strength of bone is diminished and Berry believes that poor epiphyseal tissue plus trauma is the essential cause. It has been pointed out that Perthe's disease is considerably more common in congenital dislocations of the hip and in those with shallow acetabulae. Pathological specimens usually show an abnormal ligamentum teres but the chief characteristic is probably the lessened blood supply which will be considered under that heading.

Axhausen believes bland nonseptic emboli lodge in epiphyseal areas and with trauma and special strain set up the disease. The aseptic necrosis fits in nicely with this theory but the blood supply of the head of the femur is derived from three vessels and it is hard to conceive of emboli affecting all three vessels.

It is well known that thyroidectomy, and, or parathyroidectomy, causes a marked delay in calcification and callous formation. Rickets

with its lack of vitamin D causes typical bone deformities due to poor calcification. Obesity, a possible glandular dysfunction, predisposes through excessive weight. Castration is known to cause an overgrowth of epiphyseal cartilage. Sometimes there is such an overgrowth present in some of the osteochondrodystrophies. As most of these cases occur shortly after puberty hypofunctioning of sex glands may be a factor in some cases. It is conceivable that internal secretions may play a part though it is unlikely that they are the main cause.

Most of the recent investigators regard altered blood supply as the cause in the typical case. Zemansky has collected 12 reported cases of Perthe's disease including one of his own in which the heads were pathologically examined. He finds that they all show deformity of contour with the surface cartilage intact in all but one case. A previous inflammatory disease probably accounted for loss of form of the surface cartilage in the one case. The condition of the epiphyseal lines varied considerably. There was much destruction in the old cases while in three cases of short duration the epiphyseal lines were intact indicating that the disease is not primarily one of the epiphyseal line. The outstanding finding in the cases was the extensive subchondral necroses of bone and marrow and the presence of richly vascular granulation tissue. Indications of inflammation, leucocytes and plasma cells, were found in only five of the 12 cases. In two cases the ligamentum teres was absent, in two more it was much thinned out and in another had thickened blood vessel walls. His conclusion is: Disturbances of nutrition through vascular occlusion other than embolic best account for the pathological picture in Perthe's disease.

Schwartz, a pupil of Perthe's in 1914 suggested trauma to the vascular supply of the epiphysis of the head of the femur as responsible for Perthe's disease. He thought the first injury was to one of the vessels of the ligamentum teres followed by injury to the other two vessels from altered joint mechanics. Little attention was paid to his theory, probably because Perthes did not believe in it, until recently.

Graham performed experiments in which he took young goats of the proper age and severed the ligamentum teres and found aseptic necrosis and slight flattening of the head to result.

Zemansky and Lippman[1] performed similar experiments upon young rabbits and got definite flattening of the heads in many and coxa vera in all cases. The pathology was an aseptic necrosis without granulation tissue but they regard granulation tissue as a manifestation of healing and that it probably would have come later. Neither was able to get these results after the epiphyseal line had closed.

It is known aseptic necrosis results in bone in which blood supply is less than tissue needs and that when the blood supply is lessened still more calcification results. This fits in with the increased calcification found in certain cases of advanced Perthe's disease and in the advanced cases of Calve's disease of the body of the vertebrae and Kohler's of the scaphoid.

It seems significant that the disease never occurs after closure of the epiphyseal line when the blood supply is much improved through extension of the abundant blood supply of the cancellous bone of the shaft into the head.

Blood supply may be a factor in an entirely different way in the cases of infection because of the fact that whenever there is a blood supply greater than the tissue needs the osteoclasts together with tissue halisteresis come into play and cause decalcification of the bone. Infection always causes increased blood supply at first but later decreased blood supply through partial or complete obliteration of blood vessels; this fits in with the course of many of these cases especially of the short bones. Trauma and fracture also cause an increased blood supply. There is always decalcification of fractured bone except where the blood supply is cut off as in sequestral formation when it is increased. Probably the breaking down of a vertebra in Kummel's disease occurring sometime after the fracture is due to increased blood supply for repair with decalcification and with weight bearing crushing the weakened decalcified bone.

It would seem that causes are not always the same but that fundamentally in each there is an altered blood supply in tissues which have great need for blood and in which the blood supply may be easily damaged. In other cases there may be too great a supply of blood causing so much decalcification that the bone will

not support the weight imposed upon it. Perhaps these changes may be brought about through various causes as infection, trauma, mal-development, alone or combined and with or without glandular dysfunction.

The treatment of these conditions has two purposes: To relieve pain and discomfort and to prevent permanent deformity. Deformity may spontaneously clear up with little or no treatment or may be permanent. Deformity in which there is almost complete compression of vertebrae or of the scaphoid bone, a marked mushrooming of the head of the femur without too much coxa vara or a separation of the tibial tubercle which is not a complete avulsion will respond to a few months' treatment of complete cessation of weight bearing on the affected bone, with or without the usual aids to bone calcification, with complete or near complete restoration of the normal configuration provided the disease has not been present too long with too much ossification.

After complete ossification no improvement can be obtained. Removal of weight can be attained by complete bed rest or appropriate casts or splints.

In Scheuermann's disease of the vertebral epiphyses a body cast or jacket is sufficient. This is a not uncommon disease of adolescence and its recognition with this treatment will prevent many of the cases of rounded kyphosis involving the lower dorsal vertebrae. Abstinence from heavy weight bearing will lessen the rate of deformity increase but is not sufficient to correct existing deformity. With lateral roentgenograms of the spine the condition is easy to diagnose if the possibility is kept in mind. It cannot be diagnosed from anteroposterior views. It is too often the practice not to take lateral views due to the fact that good lateral views are often difficult to get. Calve's disease of the body of the vertebra probably is frequently diagnosed as Pott's disease. In children of two to seven years of age with compression of vertebrae it should always be considered. Treatment is similar to that for Pott's disease, but the response is remarkably prompt as compared to that of tuberculosis. The prognosis is entirely different and the proper diagnosis may save parents much needless anxiety.

In the case of Perthe's disease a body spica can be applied or bed rest may be maintained for a few weeks or months—six to eight weeks often sufficing. Ambulatory traction splints or crutches with high soles sometimes are sufficient with adolescents. If the patient is overweight he should be reduced as excess weight predisposes to deformity. Whitman believes that 20 per cent of these cases have sufficient deformity to warrant operation to correct the limitation of movement and he emphasizes the tendency to arthritis deformans in later life. He does not operate until growth is complete with closure of the epiphyseal line and then he reconstructs the head of the femur. Bozsan advocates the use of bone drill channels to increase the blood supply to the diseased areas during the active stage of the disease when progress seems too slow.

Osgood-Schlatter's disease usually responds readily to immobilization of the knee in a plaster cast for two to three months. Bozsan and O'Kane strongly advocate the making of one or two bone drill channels through the tibial tubercle into the cancellous part of the tibia beneath; the tibial apophysis being a beak-like projection over the shaft, the channels are readily made by simply going through the tubercle into the diaphysis beneath. They claim subsidence of symptoms in three to four weeks and complete bony restoration as shown by x-rays as early as seven weeks.

In the case of the scaphoid some advocate putting the foot in a plaster cast while others use only a steel arch support. It responds readily to treatment after a few months with complete restoration. Most cases recover spontaneously without treatment but proper treatment often is needed to relieve pain.

Conclusions

Practitioners should be alert to the various possibilities of juvenile osteo-chondrodystrophies.

Probably any bone of cartilaginous origin may under appropriate conditions be the seat of this condition. Those exposed to the greatest strain or weight bearing are, however, most subject to it.

A knowledge of the periods of ossification and closure of epiphyseal lines in long bones and of ossification in short bones will assist greatly in segregating the cases where this condition should be suspected.

Freer use of x-rays in chronic pain without

swelling or fever in a child or adolescent of the proper age will diagnose many cases which are now missed.

This condition should always be kept in mind in all cases of apparent tuberculosis of the bone.

Many cases recover spontaneously without treatment but the possibilities of deformity are such that proper treatment should be given. Treatment is also given to relieve the pain and discomfort.

INTERPRETATION OF BLOOD CHOLESTEROL DETERMINATIONS

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Cholesterol is an alcohol having the formula $C_{27}H_{46}O$. Although it was isolated in the eighteenth century from biliary calculi, very little progress had been made until recently in the study of its metabolism in the human body. Even now our knowledge of its behavior, regulation and significance in the blood and tissues, is far from complete.

In the body, cholesterol occurs in the free state and as esters. Although not related to the fats in chemical structure there is evidence that cholesterol is closely related to fat metabolism. It is an important constituent of bile, in which it occurs only in the free state[1] and apparently it confers on bile its ability to emulsify, and facilitate absorption of, fats in the intestine.

The development of chemical methods for the quantitative estimation of both total cholesterol and cholesterol ester has stimulated study of them: figures for the normal concentration of them and the variations from the normal in pathological states are available. Quantitative estimation of the total blood cholesterol and cholesterol esters are simple laboratory procedures which can be carried out in any well equipped clinical laboratory by trained technicians.

In the blood, cholesterol is evenly divided between the plasma and the erythrocytes. Practically all the cholesterol found in the erythrocytes occurs as the free alcohol. In the plasma approximately 50 per cent occurs as free alcohol and 50 per cent as ester—a combination of the alcohol with fatty acid.

Different methods of estimation give variable figures, but in general the concentration of cholesterol in human blood plasma in the post-absorptive state varies between 160 and 190 mgm. per 100 c.c. of blood. With few exceptions, this concentration of cholesterol in the blood plasma is maintained at a constant level in any given individual.

Race and **Sex** show no influence in the blood cholesterol though in women there is a slight premenstrual rise which is followed by a fall below the average level of the individual concerned with the onset of menstruation[2].

Pregnancy: Tremendous variations in the plasma cholesterol concentration may occur during pregnancy. Most women show an increase which is apparent at from 10 to 15 weeks gestation and this increase is maintained until several weeks post partum[3 4].

Effect of Meals: After meals a rise in blood cholesterol occurs which varies to some extent with the meal taken[5 6]. This increase is largely in the ester form and is probably related to fat transport. Since meals may give temporary increase in cholesterol in the plasma, estimations should be made when the patient under observation is in the post-absorptive state.

During the early days of a fast, the blood cholesterol regularly increases, but when the fat reserves of the body have been exhausted, the cholesterol level sinks below the normal.

DISEASE CONDITIONS WITH HYPERCHOLESTEREMIA.

Hypercholesteremia is regularly found in ketonuria, xanthomatosis, myxedema, severe diabetes mellitus, nephrosis, obstructive jaundice with severe damage to the hepatic parenchyma, Paget's Disease.

Xanthomata are small cutaneous or subcutaneous tumors, the cells of which are heavily laden with cholesterol and other lipoids. They are frequently seen only in patients having prolonged hypercholesteremia. Xanthomatosis or Christian-Schuller disease shows bone changes and is readily differentiated from other conditions in which hypercholesteremia is found by roentgenography.

Myxedema is always associated with hypercholesteremia. In the absence of the few other causes of hypercholesteremia, hypercholesteremia points more specifically to thyroid deficiency than to a lowered basal metabolic rate[7 8]. Low basal metabolic rates are found in many diseases, notably in obesity, Addison's disease and pituitary chromophobe adenoma; but in these conditions, the blood cholesterol is usually normal[9]. Low metabolic rates are often observed after subtotal thyroidectomies. When normal blood cholesterol values exist in thyroidectomized patients with low basal metabolic rates, no clinical evidence of myxedema is found. On the other hand, clinical myxedema is never encountered without hypercholesteremia. Furthermore, the administration of thyroxine to patients with hypercholesteremia results in lowering of the blood cholesterol level[10]. Hypercholesteremia, therefore, is characteristic of thyroid deficiency and the degree of hypercholesteremia, is quantitatively proportional to the degree of existing hypothyroidism.

Obesity. Low basal metabolic rates are frequently encountered in obesity. Because of this finding, many of these patients have been labeled myxedema or hypothyroidism and thyroid extracts have been used for treatment. In uncomplicated obesity, thyroid deficiency does not exist, for numerous studies have shown perfectly normal blood cholesterol concentrations in such patients[11 12 13]. It is well to bear in mind, however, that not all myxedematous patients are obese. Myxedema is frequently encountered in patients whose weight is below normal.

Diabetes Mellitus: When normal blood cholesterol readings are present in diabetes mellitus, even though the fasting blood sugar is much elevated and persistent glycosuria is observed, the diabetes is essentially mild and the prognosis is favorable. When, however, there is persistent hypercholesteremia, the diabetes is severe and progressive. Temporary hypercholesteremia may be found in the presence of ketosis and is of less prognostic import since hypercholesteremia results from ketosis regardless of its cause. Blood cholesterol determinations furnish a much safer guide to the progress of a diabetic patient and give a surer index of the severity of the diabetes than blood sugar determinations[14]. In advanced diabetes with arteriosclerosis, the esterified cholesterol fraction is from 10 to 15 per cent higher than that found in normal individuals[15].

Lipoid Nephrosis: Nephrosis is always accompanied by hypercholesteremia; but the clinical picture, the deficiency in serum proteins, the changed albumin—globulin ratio of the blood serum due to the fall in plasma albumin, with the associated albuminuria, makes differentiation easy from other diseases showing hypercholesteremia. In myxedema, the only condition with which nephrosis might be confused, the serum proteins are increased.

Disease of the Biliary Tract: Cholesterol determinations offer an excellent means of differentiating jaundice due to mechanical obstruction, from jaundice due primarily to disease of the hepatic parenchyma. In obstructive jaundice, great increases in total blood cholesterol are found. The cholesterol esters are relatively or absolutely decreased depending upon the severity of the secondary damage to the hepatic parenchyma. In jaundice due to intrahepatic disease, the total cholesterol is normal or below normal. Whenever damage occurs to the hepatic parenchyma, i.e., in yellow atrophy and catarrhal icterus, a reduction in the cholesterol esters results which is **both** relative and absolute. This reduction in cholesterol esters parallels the severity of the disease process and when recovery takes place the cholesterol ester fraction of the plasma returns to normal levels.[16 17 18 19] Although biliary calculi are composed largely of cholesterol, normal plasma cholesterol readings are frequently encountered in patients with cholelithiasis.

EFFECT OF SOLAR RADIATION ON BLOOD CHOLESTEROL.

Low basal metabolic rates have been reported with great frequency in the southwestern United States and the suggestion has been made that hypothyroidism is relatively more frequent in this locality than in other parts of the country[20].

It has already been shown that basal metabolic rates do not always indicate hypothyroidism. However, increases in the cholesterol content of the blood plasma have been reported following ultraviolet radiations of man and experimental animals.[21 22] Malczynski[23] reports a transient increase of the plasma cholesterol

from a single radiation of 30 minutes but whether repeated solar radiation over a long period of time results in permanent elevation of the cholesterol level is not known. If prolonged solar radiation causes a permanent increase in plasma cholesterol it is possible this increase is caused by depression of the thyroid function. The writer's observations, while few in number, show no constant increase in the plasma cholesterol resulting from repeated solar radiation of patients. Further observations are being made to determine the effect of solar radiation on the basal metabolic rate and the cholesterol content of the blood plasma—to be published later.

Paget's Disease. While Paget's disease is characterized by hypercholesteremia, the diagnosis is made by the bony changes.

HYPOCHOLESTEREMIA

Cholesterol readings below normal are found in, cachexia from any cause, the late stages of starvation, hyperthyroidism, anemia, acute febrile infectious diseases, syphilis, leprosy, exudative tuberculosis, and epilepsy. During the initial stages of starvation, as previously stated, the plasma cholesterol is elevated; in the late stages after fat stores have been exhausted, hypocholesteremia is the rule.

Hyperthyroidism. Hypercholesteremia is characteristic of hypothyroidism; it is not surprising, therefore, to find the plasma cholesterol below normal in hyperthyroidism. The blood plasma cholesterol and the basal metabolic rate bear a reciprocal relationship when judged by average values, but individual relationships cannot be postulated with certainty. and the reduction of cholesterol does not always appear to keep pace with the severity of the thyrotoxicosis in individual cases[34].

Anemia. Any severe anemia is accompanied by decrease in the plasma cholesterol content[28]. Considerable diversity of opinion exists regarding the significance of the hypocholesteremia which is observed in anemia and in most instances, the value of plasma cholesterol findings in differential diagnosis is denied[26]. Muller and Heath[27] present evidence which apparently contradicts the general opinion that the hypocholesteremia is related to the anemia per se and find the behavior of the plasma cholesterol in pernicious anemia differs with its behavior in the secondary anemias. Since pernicious anemia is readily diagnosed from the secondary anemias by the macrocytosis, megalocytosis, high color index and leucopenia which are invariably observed in pernicious anemia, until more unanimity of opinion exists regarding the plasma cholesterol readings in the anemias, it seems unwise to base any differential diagnostic value in anemias on changes in the cholesterol content of the blood plasma.

In the other conditions in which plasma cholesterol values are lowered, no diagnostic or prognostic significance can be attached to the finding.

SUMMARY

Plasma cholesterol determination is a simple laboratory procedure which can be utilized to advantage in the diagnosis of disturbances of thyroid function and in measuring the response to thyroid therapy. It offers a ready means of differentiating simple obesity from obesity due to thyroid deficiency. Plasma cholesterol determinations have considerable prognostic value in diabetes mellitus and differentiate between mild and severe diabetes. Measurement of the total plasma cholesterol and cholesterol ester gives an excellent index of liver function and differentiates obstructive jaundice from jaundice due to destruction of hepatic parenchyma.

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Unusual Allergenic Property of Autolyzed and Decomposed Proteins

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I have made certain observations, mainly upon my allergic self, which have convinced me that decomposed proteins are more likely to serve as allergens than are the respective unchanged or normally digested proteins. References in the literature support these observations.

My allergic reactions—all mild—consist of pruritis here and there about the body, usually about the wrists and hands, pharyngeal catarrh and irritation, acute and chronic rhinitis, and occasionally slight bronchitis and gastric distress.

My first observation resulted from eating an over-ripe cantaloupe, the inside of which was soft; it was freshly cut, however, and the rind was solid and intact throughout. The softening of the meat could have been due only to autolysis, as bacteria could not have had access to the inside of the cantaloupe. Immediately after eating it I began to cough from pharyngeal irritation; this persisted for about two hours in spite of efforts to control it. The experience was so unpleasant that I have not repeated it with over-ripe cantaloupe. I have eaten fresh cantaloupe repeatedly since, as I had before, without disagreeable results. I had a similar experience from an extremely ripe delicious watermelon.

I have repeatedly had disagreeable effects from ham—rhinitis, severe colds, pharyngitis, or severe cough. Ham may be prepared, I understand, in a manner that may afford opportunity for autolysis of the interior to take place before the preservative thoroughly penetrates it.

Two home-made wines produced gastric discomfort for me; with these I have experimented several times. Each time I had severe stomach ache. Other home-made and commercial wines have not given me this uncomfortable effect. Certain beers have given me pruritis.

On one occasion I took a dose of powdered pepsin which I knew at the time was not fresh; the result from this was a most annoying and immediate pruritis.

Cheese has repeatedly produced extremely annoying pruritis for me; occasionally I find a cheese which does not. Cheese owes its peculiar and alluring properties to bacterial growth and chemically changed milk proteins.

Venison has occasionally given me annoying pruritis. The animal is usually killed in the mountains where the task of removing it to an ice-box is difficult and takes from a few hours to one to two days. The Arizona sun is hot and therefore the venison is likely to have an undue amount of heat before it is chilled.

I have repeatedly observed that beef which is exceedingly tender is likely to give me pruritis. The first observation of this came last fall when, in the mountains on a hunting trip, I ate a sandwich, the important ingredient of which was extremely tender beef. It had been purchased in Phoenix. I can imagine that it was in the truck in the sun for a time before it arrived at the store 30 miles away, and that even after reaching the store the cooling system was not adequate to chill it thoroughly. After the cowboy got the meat, he may have delayed before getting it to his ranch and cooking it. I have one patient who has observed that beef kept in her frigidaire for 24 hours and then cooked has an untoward gastrointestinal effect, which a portion cooked and eaten the day of purchase had not had.

Dates are another food which are extremely prone to produce pruritis for me. Dates are invariably kept for protracted periods after being removed from the trees. Certain other cured foods, such as nuts and raisins, have given me disagreeable results which I could only reason were due to peculiar chemical

products from fermentation or autolytic changes.

I have confirmed many of these observations upon myself by reports from patients on their experiences.

Discussion: Although my observations are not as clear cut as laboratory experiments, the conclusion seems warranted that foods which have undergone decomposition from fermentation, autolysis, or bacterial disintegration are more likely to serve as allergens than are foods which are perfectly fresh. The inference is that the split products from autolysis, fermentation, and bacterial disintegration differ from those appearing in the course of normal digestion. The suggestion has been made that allergic reactions are due to an amine, perhaps histamine; autolysis carried to the extreme likely produces amines; amines commonly result from bacterial decomposition of proteins.

The assumption seems logical that food eaten perfectly fresh, passing through the stomach and lying stagnant in the duodenum or jejenum for hours without being churned and mixed with pancreatic and duodenal secretions, may undergo decomposition. The bacteria swallowed with food are at an ideal temperature for growth and would soon start bacterial decomposition, unless the normal digestive processes and peristalsis keep them under control. In other words, food may be eaten perfectly fresh and spoil in the alimentary canal before having a chance to undergo normal digestion.

Others have thought of spoiled or autolyzed foods as causes of allergic reactions.

Phillips speaks of a slowing of the bowel current as predisposing to the production of allergy. . Barber says bacterially decomposed proteins of the intestine are likely to lead to allergic reactions. Holbrook and Gray write of alimentary putrefaction as primary causes of allergic intoxications. MacQuiddy and Baker found stools of allergics more odorous and acrid and displaying more fermentation than do normal stools. Jobling and Peterson say that autolysis produces allergens. Jack thought that asthma resulted from putrefactive products. Thomas found that decomposed hides and leather and glue are particularly prone to produce allergic manifestations. Sulman holds that the gastrointestinal organisms may putrify foods producing what he calls "putrid colloid," which he has isolated; these colloids do not vary as to the source of the protein, but do vary as to the type of bacteria producing them. Walzer found that split-proteins, serving as allergens, may arise from cooking, digestion, or putrefaction. Charles Richet, Jr., believes that bowel stasis contributes materially to the production of allergens and administers one dram of mineral oil with each meal to overcome bowel stasis.

Conclusions: Autolyzed, fermented, or decomposed proteins are more prone to act as allergens than are fresh, unchanged proteins or normally digested proteins. Fresh foods may undergo spoiling in the alimentary canal before they have had a chance to undergo normal peristalisis. It would seem that in certain cases a mild bowel stimulant taken with food may prevent allergic reactions by stimulating peristalsis, mixing food and alimentary canal secretions allowing normal digestion and inhibiting bacterial putrefaction.

Another thought seems worthy of suggesting: Green fruits and vegetables as obtained from the ordinary green grocer probably have had hours of exposure to temperatures that promote chemical change. Canned fruits and vegetables are probably generally taken with more or less dispatch from the picking to the cannery where little time supposedly is lost in getting them into the can. May this be an argument for canned over fresh fruits and vegetables—unless they really are fresh? One wonders if the long time which cereals are kept before they are consumed may have something to do toward promoting sensitizations to them.

ANNUAL REPRINTS OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1934, WITH THE COMMENTS THAT HAVE APPEARED IN THE JOURNAL. Cloth. Price $1. Pp. 135. Chicago: American Medical Association, 1934.

Many apparently worthwhile articles for one or another reason are found not acceptable for inclusion in New and Non-official Remedies. The Council is careful to give full and careful reports for their action. Then, too, there are preparations which should never have come into existence; The Council has had to make reports upon these. The reports for the past year are given in this volume.

Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX. SEPTEMBER, 1935 No. 9

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The Annual Southwestern Meeting
(Nov. 21-23, at El Paso)

Another fine clinical conference is being prepared for the fall meeting of the Medical & Surgical Association of the Southwest, to be held in El Paso on November 21, 22 and 23.

Dr. E. J. Cummins, of El Paso, is chairman of the Program Committee. With his subcommittees, he has been working assiduously for several months and the program is nearly complete. All the papers and addresses are to be given by invited guests. The program has been planned in accordance with the wishes expressed by the members of the Association. It is impossible to have every specialty of medicine represented on a program of that size, so that the preponderance of votes has been the guiding factor in building the conference plan. As was to be expected, by far the greater number of votes favored papers on general medicine and surgery, with the more important specialties having about equal votes in the choices expressed.

To lead the discussions on General Medicine, the committee secured Dr. Chas. T. Stone, Professor of Clinical Medicine at the University of Texas (Galveston). In addition to his set addresses and round table conferences, he will hold diagnositc clinics.

In the field of Allergy, an important adjunct to general medicine, Dr. Albert Rowe, of San Francisco, a well known authority in this field, author of an important text on the subject, has been secured.

Dr. James C. Masson, of the Mayo Clinic and Dr. Vernon Carlton Hunt of Los Angeles, represent the field of General Surgery and Gynecology. They will lead discussions and give addresses on important phases of surgery.

Dr. Louis A. Buie, of the Mayo Clinic, will present some surgical phase of Rectal Diseases, an important surgical specialty in which much interest was expressed.

The specialties of Rhinology and Oto-Laryngology are of interest to many of our members and the discussions in this field will be led by Dr. Isaac H. Jones, Associate Professor of Clinical Medicine, School of Medicine, University of Southern California, Los Angeles.

Urology will be represented by Dr. Herman C. Bumpus, Jr., of Pasadena, Calif. This specialty ranked high in the interest expressed by our members.

It is expected that the specialty of Pediatrics will be represented on the program, but the leader for that phase of medicine has not yet been secured.

The Scientific Exhibit will again be in charge of Dr. L. O. Dutton, whose work was the outstanding feature of last year's meeting. Dr. Dutton has stated that the scientific exhibit will far exceed in size and interest the one of last year which filled the entire mezzanine floor of the Hotel Hussmann.

One evening session will be given over to the scientific program, probably Thursday evening.

At their meeting held in El Paso last January, the Executive Committee authorized a registration fee of five dollars for this meeting. The Membership Committee has been active throughout the year, and quite an increase in the active and affiliate membership has resulted. This meeting should be, far and away, the best ever held by the Association.

Dr. David M. Davis of Phoenix is president and Dr. James J. Gorman of El Paso is the president-elect, of the Association.

Detailed program of the meeting will be found in the October issue of this journal.

Arizona Naturopaths Active!

The Naturopaths may now be full-fledged practitioners of the healing art simply by taking examinations under the law passed by the last legislature creating a board of examiners and defining naturopathy; or where are they?

"Section 5" reads: "Naturopathy defined. For the purpose of this Act, Naturopathy, which includes all forms of physiotherapy is hereby defined to be: A system of treating the abnormalities of the human mind by the use of drugless and nonsurgical methods, and includes the use of physical, electrical, hygienic, and sanitary measures incident thereto."

"Section 6" reads: "Certificate to practice, application, fees. Any person who wishes to practice naturopathy or any branch thereof in Arizona, shall make application to the board for an examination not less than 15 days before the date of the next examination, and upon blanks furnished by the board, and, except as hereinafter provided in Section 8, ..."

"Section 8" says: "Certificate to present practitioners. Any person of good moral character, who has practiced naturopathy in this state continuously for at least five years immediately prior to the passage of this Act, and can prove by established records and affidavits his actual and continuous practice for that period, shall be entitled to a license to practice naturopathy; providing, however, such person shall pass a regular examination given by the board covering the subjects it may assign for such examination. . . . . Practitioners licensed under the provisions of this section, shall, within thirty days after said license has been properly recorded, present same together with a fee of $3.00 to the Arizona State Board of Examiners in the Basic Sciences at the University of Arizona, at Tucson, and the said board shall issue a Certificate of Registration in the Basic Sciences without examination in the same manner as heretofore issued to other practitioners engaged in practice at the time of enactment of . . . the Basic Science Law."

"Section 18" reads as follows: "Constitutionality; Partial Invalidity. If any clause, sentence, or part of this Act shall, for any reason, be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not impair nor invalidate the remainder of this Act, but shall be confined in its operation to that part adjudged invalid."

These quotations are from the Arizona Statute as reprinted in a pamphlet entitled "Naturopathy in Arizona."

"Section 15" of the Basic Science Law reads: "Obtaining License without Certificate; Penalty. Any person who shall obtain or attempt to obtain a license to practice the healing art or any branch thereof from any board authorized to issue any such license, without presenting to said licensing board a valid certificate issued by the state board of examiners in the basic sciences as by this act required, shall be guilty of a misdemeanor and shall be punished therefor by a fine not exceeding one hundred dollars or imprisonment in the county jail not more than three months, or by both such fine and imprisonment."

"Section 16" reads: "Issuing Invalid Certificate: Penalty. Any person who knowingly issues or participates in the issuance of a license to practice the healing art or any branch thereof to any person who has not presented to the licensing board a valid certificate from the state board of examiners in the basic sciences, or to any person who has presented to such licensing board any such certificate obtained by dishonesty or fraud, or any forged or counterfeit certificate, shall be guilty of a misdemeanor and shall be punished therefor by a fine not exceeding one hundred dollars or by imprisonment in the county jail not more than three months, or by both such fine and imprisonment."

A small pamphlet entitled: "Naturopathy in Arizona, Information Concerning the Law, Rules and Regulations of the Board of Examiners," announced as issued by Arizona State Board of Naturopathic Examiners has come to our desk, along with a blank on which to make application for Naturopathic examination and license.

The blank at one place reads: "At present I hold Basic Science Certificate No....., Dated....., licensing me to practice.....
(*name of Healing Art*)
in the State of Arizona."

Another section reads: "I have been practicing Naturopathy or a branch thereof....."
(*specify which branch*)

The blank also says: "I have completed courses in the following subjects:" The list of subjects reads like a medical course of study. There are several differences. For example, there is "drugless gynecology" and "drugless therapeutics" and "manipulative and adjustive Technic."

The sections we have quoted from the Naturopath Law seem to be the gist of the law. It will be observed from reading sections six and eight that the law disregards sections 15 and 16 of the Basic Science Law. Since the Basic Science Law was passed as a referendum measure and approved by the people, it would seem that sections six and eight must be unconstitutional and that the naturopaths, in order to be licensed by this law, will have to take the Basic Science examinations. The Chiropractors, however, who are already licensed by the Basic Science Board, can probably take the naturopath examination and become naturopaths. A phase of the law that seems to be a misnomer is that it may compel masseuses, persons who are working under the directions of physicians, to take examinations in their "branch of naturopathy" as defined by the law. At any rate, the naturopaths have been visiting the masseuses of Phoenix, we are reliably informed, and telling them that they must take the naturopath examination or they will be put out of business. We wonder just how far the naturopaths will have to go to constitute a violation of the Basic Science Law rendering them liable to the penalties of that law.

Undoubtedly there will be a test case in

court on this Law. Whatever the outcome, it seems that we are safe in saying that the Governor made a mistake by not vetoing this bill. Giving sub-standard practitioners the rights provided in this law is certainly inimical to the best interests of public health.

SOCIALIZED MEDICINE AND THE PHYSICIAN

We have endeavored to present from time to time such facts as come to our attention on the question of state medicine so that our readers may be somewhat informed upon the subject. In this issue is published a book review of a book entitled "The Doctor's Bill." We believe the book review is worth reading and certainly the book is worth reading.

Is the reader keeping himself informed upon these proposed changes in our methods of practice? Have you discussed the subject with your patients? Have you been thinking about the best method of giving medical care to the indigents? Have you been thinking about the best method of giving care to the low income group? Should the physician be recompensed by the state for these, and to what extent? Upon your answers to these questions and the answers of organized medicine will doubtless depend whether we have state medicine forced upon us. In case state medicine comes, the patient will have his physician chosen for him by political leaders. Have you informed your patients of this fact? The cost of medical care will be much increased because a large organization will be required to administer the funds and the system. Have you told your patients about this?

There are large funds set aside for the specific purpose of "getting" state medicine throughout the United States. The persons who are actively fighting for state medicine are not physicians and certainly not among the suffering public. For the most part they are well meaning individuals with altruistic spirits. It is not fitting to bemean these individuals because in the main bemiring statements against them would be slanderous; of course there are those who expect to profit in case state medicine comes. Have you told your patients about these? Do your legislators or those who will be your legislators know your views upon these questions? It is important that you inform yourself and then in turn your friends and patients on this vital subject.

THE BORDEN COMPANY REPLIES TO OUR JUNE EDITORIAL ON THE MILBANK MEMORIAL FUND

The interesting feature of the letter is that it was written by one L. J. Auerbacher who signs himself Director of Medical Relations. We wonder why a Director for Medical Relations? The outstanding statement in his letter was as follows: "You might be interested to know that the profits made on liquid milk by most of the large distributors in the United States last year were non-existant. This is particularly true of the Borden Company, in which a deficit was shown on their liquid milk sales for the year. We believe the average doctor made more profit out of one call on a patient than most liquid milk distributors made on their entire year's business, which was in the red."

We think Mr. Auerbacher should be informed that he is flattering the medical profession when he intimates that any physician made a profit last year or any of the recent years. As a matter of fact most physicians have borrowed to the limit on their insurance and other tangibles in order to keep their offices open, buy gasoline and other necessary expenses in order to do what they can to relieve the suffering. A physician may refuse to make a call just as a milkman refuses to leave the milk when money is not forthcoming. We believe that if the managers of milk companies would enter the homes in the same intimate way that physicians do they would leave the milk without the pay just as the physicians often give their services with no thought of ever being paid.

There is no thought of criticism of the Borden Company or any of its members. It is expected that they do not have the same opportunity for seeing the sorry side of life and cannot be expected to give of their goods and time in the same way as physicians do. We do believe, however, that every effort should be made to have them see all sides of the problem; likewise we physicians must not be blinded to the medical economics problems like the man in the forest who could not see it for the trees.

JOHN A. KINGSBURY CARRIES ON

Notwithstanding the fact that Mr. Kingsbury is no longer the Secretary of the Milbank Memorial Fund he declared recently in an address before the Annual Conference of the National Federation of Settlement, Inc. at Montreal, Canada, June 9, that he had no intention of withdrawing from the fight for health insurance. He says there is a very definite distinction between State Medicine and health insurance, and that we shall pool the cost of medical care in this country and continue to receive services from private practice or we may be forced to both pool the costs and furnish medical services with salaried physicians paid by the state. His present plan calls for state-wide compulsory insurance for all persons with an income less than 3000 dollars a year. Insurance costs are to be borne upon the 40-40-20 ratio by the employees, the employer, and the state respectively. He has nothing to say about the proper care for those who have no incomes.

PAMPHLET ON PHYSICAL THERAPY APPARATUS

In an effort to place physical therapy upon a rational and sound basis the Council on Physical Therapy of the Amer. Med. Assn. has issued a pamphlet containing a list of the accepted apparatuses. This pamphlet may be obtained free by writing to the Secretary, Council on Physical Therapy, A. M. A., 535 North Dearborn St., Chicago, Ill.

SOCIALIZED MEDICINE IS SUCCESS, SAYS SIR HENRY GAUVAIN

Sir Henry Gauvain, eminent tuberculosis specialist, in an interview in Albuquerque, N. M., had the following to say concerning Socialized Medicine in Great Britain:

"Socialized medicine in England has been a success. Each nation, however, must work out its own problems. The system that fits England may not be adaptable to the United States. The National Health Insurance Society was established in England in 1911. It is supported by contributions from the employer, the employe and a grant from the goveranment. Each individual, however, is allowed to select his own physician. He can receive treatment in his home or go to his doctor's surgery.

"The system has brought a higher standard of living to England. The improvement has been vast in the past 25 years. It starts with pre-natal care and is carried right through the pre-school and school ages. England's health conditions are much better and the death rate has been materially reduced."

THE ALBUQUERQUE TRIBUNE.

Information given us by Dr. G. Mackie confirms the above statements.

DEDICATION AND OPENING OF THE LEXINGTON NARCOTIC FARM

The first United States Narcotic Farm—at Lexington, Ky.—was formally dedicated and opened by the Surgeon General on the afternoon of May 25, 1935. Admissions were accepted on and after May 29, 1935; 300 addict prisoners from the Federal prison system were to be transferred to the Farm; the Farm will accept cases placed on probation by courts having jurisdiction, one condition of such probation being that the probationers voluntarily submit themselves to confinement and treatment in a narcotic farm; and they accept a limited number of persons voluntarily seeking treatment. By June 30, 1935, there were 280 addicts at the Farm. There are 1000 beds; at present only men can be taken care of; later it is planned that women addicts will be provided for. A second Narcotic Farm is in process of being developed at Fort Worth, Texas. Preliminary plans have been approved and contracts for the necessary buildings will probably be let during the summer. The institution will be a cottage type; custodian features will not be emphasized as in the Lexington institution.

The opening of the institution at Lexington is an expression on the part of the United States Government that their attitude toward the drug addict problem is definitely changed. The government seems to recognize that strict laws regarding commerce of narcotics are not the only measures to be applied to the medico-social problem of drug addiction. Repeated prison sentences have been imposed upon drug addicts more than upon any other type of adult prisoners: this has been the universal way of dealing with them.

The object of the Lexington Farm is to rehabilitate the addict, restore him to health

and train him to be self-supporting and self-reliant. During the treatment he will be under control of the institution as a protection to the community. Shops are being established to afford occupational and vocational training, and education. Experiments are to be carried on to determine the best methods of treatment.

AMERICAN MEDICAL DIRECTORY

The American Medical Association is now getting material for the 1936 edition of the American Medical Directory. The value of this book rests in its completeness; it's being complete depends upon the physicians themselves to supply data about themselves. Each physician will be given a card on which he is to give the necessary data about himself. He should fill out this card as soon as he receives it; otherwise it may become buried under a stack of medical journals, circulars, etc. Fill out the card at once. If you do not get a card write and ask for one.

NEWS ITEMS

Dr. A. C. Arbuster of Phoenix, Arizona spent a vacation in Northern California, and enroute home visited the San Diego Exposition.

Dr. George C. Truman, state superintendent of public health of Arizona, spent his vacation at Fort Tuthill near Flagstaff in camp with the Arizona National Guard.

Dr. W. D. Gilmore of Tombstone, Arizona, was married to Miss Esther Schoneberg of Grand Island, Nebraska. Mrs. Gilmore is a former nurse; she spent two years in professional work in Tucson.

Dr. Garland B. Couch of Phoenix, Arizona, who recently underwent a major operation at the Good Samaritan Hospital, is out and around now seeming to be as well as ever.

Dr. Cornelius A. O'Leary who has been living in Phoenix, Arizona for the past two years, will spend the next few years in Tucson in order that his two children may enter the University.

Dr. K. H. Thayer, son of Dr. and Mrs. L. H. Thayer of Phoenix, Arizona, was named by the Maricopa county board of supervisors in July as assistant county physician.

Dr. I. L. Garrison of Phoenix, Arizona, recently resigned as assistant Maricopa county physician. He and Mrs. Garrison are making an extensive trip through the East.

Dr. and Mrs. Charles W. Sult and their daughter are living in the Normandie Hotel in the Wilshire district, Los Angeles. Dr. and Miss Sult made a tour of the Pacific Coast. Miss Sult is to be married to Lloyd Daggett on September 17.

Dr. Fred G. Holmes of Phoenix addressed the Kiwanis Club and later the Hiram Club upon the subject of medical history.

Dr. and Mrs. E. A. Gatterdam and son, of Phoenix, Arizona, spent the latter part of July in Los Angeles, California. They also visited the San Diego Exposition on their way home.

Dr. and Mrs. A. E. Cruthirds of Phoenix have recently purchased a beautiful home at 2224 Encanto Drive in Phoenix.

Dr. Alexander M. Tuthill, Major General, will retire from his high position on September 22 because of having reached the age which makes retirement mandatory. He was recently at Fort Sill, Okla., where the 45th division composed of national guard troops of Oklahoma, New Mexico, Colorado, and Arizona were engaged in annual maneuvers.

Dr. Hillary D. Ketcherside, of Phoenix, was in California for his vacation during the month of August.

Mrs. J. W. Morris, wife of Dr. Morris of Safford, Arizona, died August 20. Mrs. Morris was born in South Carolina March 10, 1870. She and Dr. Morris were married in 1895 in Arkansas. They came to Arizona in 1918. Mrs. Morris is survived by her husband, two daughters, and one son.

The Maricopa County Health Unit under the jurisdiction of Dr. A. N. Crain announced that for seven months of this year there was but one case of diphtheria among the school children. In the case reported the parents of the child had refused to have it immunized. The father was a diphtheria carrier and the child contracted the disease from him. About 50 per cent of the county's total school population is now protected against diphtheria. In comparison with the one case developing this year, there were in 1929, the year before the health unit was founded, 161 cases of diphtheria with 22 deaths

Dr. Trevor G. Brown, President of the Phoenix Little Theater, is putting on a drive to secure members for the oncoming year.

Dr. George E. Goodrich, of Phoenix spent the greater part of July and early part of August at the Coast.

Dr. Robert Flynn, of Phoenix is visiting Europe during the summer.

Dr. Howell Randolph of Phoenix spent his summer vacation in Denver, where he visited hospitals and clinics and reports a profitable summer.

Dr. H. K. Beauchamp, of Phoenix, Arizona, is spending the month of August at the Coast.

Dr. Winn Wiley of Phoenix has been at the Coast for the entire summer.

Dr. Hal Rice of Morenci spent the latter part of August in Phoenix.

Dr. H. P. Mills of Phoenix, Ariz., spent the summer in Santa Barbara, Calif.

THE INDUSTRIAL RELATIONS COMMITTEE OF THE ARIZONA STATE MEDICAL ASSOCIATION

Upon taking over the office of president, Dr. C. R. K. Swetnam of Prescott, automatically became chairman of this Committee, and made the following appointments: Drs. A. C. Carlson of Jerome, R. D. Kennedy of Globe, Meade Clyne of Tucson and E. Payne Palmer of Phoenix. At the first meeting of the Committee, Dr. D. F. Harbridge was recognized as ex-officio member and Dr. W. Warner Watkins was asked to serve as secretary of the Committee.

During the three months of May, June and July, the following items have been considered by the Committee:

Attention was called to recent development in New York, where an advisory council to be named by the State Medical Association has been recognized by legislative statute; this council is to work with the Industrial Commission of that state in determining the doctors of each county medical society who are competent to handle industrial injuries. The question was raised as to whether our committe could function in any such manner or could help work out any plan which might be applicable in Arizona. The committee was positive that their functions did not extend to any such activity, and no such program is feasible in Arizona.

Case of an infected wound of the ear; question whether daily dressings for a month and bill for same were reasonable. Committee advised that they were.

Case of a hand injury with amputation of finger; man later developed an acute psychosis and died; question of relation between the injury and the psychosis; committee thought they were not related.

Case of a young woman who fell on steps and wrenched her back, and is reported to have adhesions in the pelvis. She has previously had operations for appendicitis and salpingitis; question of the relation between the pelvic adhesions and the fall. Committee gave opinion that the pelvic adhesions were probably not the result of the fall.

Question of compensation for examinations made in a presumed industrial injury; the examinations revealed that the disabilities were not the result of industrial accident. Also question of compensation for examination of an eye condition referred to an ophthalmologist by the workman's employer. These cases opened up much discussion regarding the payment of medical charges for examinations and emergency treatments in cases which later proved to be non-compensable. The commission was asked to bring before the committee all the cases of this kind received during a month's period. This was done, and the following were offered as typical:

A workman on the highway became exhausted from heat; he rested two hours and then finished his shift. The following morning, while still at home, he suddenly developed a paralytic stroke. The commission ruled that it was not a compensable injury.

A man felt a pain in his groin while lifting a quarter of beef. Surgeon examined him and found a hernia. This does not fulfill the criteria of a traumatic hernia, and since the physician should have known this, the committee approved the rejection of the surgeon's bill for examination.

A man slipped and twisted his back when lifting lettuce crates. There was no employer's report and no authorization for treatment from the employer who denied any knowledge of the injury. The claim for compensation and the doctor's bill were both denied by the commission on the ground that there was no proven industrial injury.

A workman on the highway stepped on a small rock and twisted an ankle. The doctor in this case was asked by the commission to make a detailed report, and payment for this will be made.

Workman trying to roll a large rock noticed a pain in the side, but continued at work; examination later showed a hernia. This was obviously not a traumatic hernia, and surgeon's examination charge was not allowed by the commission.

A laborer working at picking carrots noticed his finger getting sore and swollen. There was no record of an accident and the lesion was not compensable.

Man sprained his back while at work and went to doctor two weeks later. The doctor reported the case but did not think it was due to accident. Compensation was denied but the doctor's bill would be paid.

A miner sprained his back while stooping over in tunnel. There was no accident and the disability was regarded as non-compensable.

Workman was pulling cans out of a brine tank and claimed to have strained the muscles of the abdomen. The doctor made a detailed examination and report for which the commission is glad to pay though ruling that the injury was not compensable.

After discussing these illustrative cases fully, and similar hypothetical cases, the principle was agreed to by the committee and the commission that "in those instances in which the doctor's examination and report is of a character which definitely aids the commission in deciding whether a doubtful case is compensable or non-compensable, the doctor's charge for first examination and report will be paid."

The question of an additional charge for local anesthetic was raised; for example a charge of $5.00, in addition to the regular surgical fee, for a hernia operation. The committee agreed that if such cases are operated upon in a hospital, it is assumed that the hospital will furnish the anesthetic.

Question was also raised regarding routine examination of tissues. The committee was of the opinion that routine examination of such tissues as will be resected when repairing industrial injuries is not necessary. If hospital rules require

that tissue examinations be routinely made, that practice is for the hospital's benefit and not necessary for the commission's information. The committee advised the commission that special permission should be secured for tissue examinations.

A cowboy riding through brush received a wound on the cheek. Infection and erysipelas developed between five and six weeks later. Question regarding the time interval, whether the infection might reasonably be connected to to the injury. Committee agreed that it might.

Case of an injury treated three months after puncture wound of the sole of foot. Chronic infection was then present with bone necrosis. Question whether the lesions reported could reasonably have resulted from the puncture wound. Committee was of the opinion that this was reasonable.

Matter of charge for treating fracture of metatarsal bone. Surgeon charged by the visit, instead of the fixed fee set by the fee schedule. Committee decided that it is more satisfactory and less confusing to make charges according to the schedule.

Question of a workman who sustained a head injury by falling material in 1930, returning to work after 12 days. Four years later the man developed dizzy spells and nervousness, which gradually assumed the characteristics of paralysis agitans. Re-opening of the case on basis of a connection between these symptoms and the old injury was requested. The committee studied all the available information and gave opinion that they could not see the connection between the symptoms now described and the injury four years ago.

The Committee meets regularly on the first Sunday of the month, at the Hotel Westward Ho, in Phoenix, starting the meeting at luncheon at one o'clock. Any member of the State Medical Association will be welcome to present matters of interest to the committee, either by letter or in person.

C. R. K. SWETNAM, Chairman.
Meade Clyne
R. D. Kennedy
A. C. Carlson
E. Payne Palmer
D. F. Harbridge, ex-officio
W. Warner Watkins, Secretary.

THE REPORT OF ARIZONA'S DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION

(Continued from August issue)

Dr. James S. McLester, President-Elect of the A.M.A., in his opening remarks congratulated the House of Delegates for reaffirming a few months ago its insistence on complete professional independence of the American physician in a world of unrest and uncertainty, and thereby set an inspiring example of clearness of vision and stability of purpose, and by opposing all outside control of medicine, governmental or otherwise, it took an important step toward the maintenance of the present high standards of American Medicine.

In the report of the Judicial Council, two matters were discussed and clarified. The first dealt with membership in the State Associations. After recalling to the members of the House that it was the practice in a few constituent associations to admit to membership physicians non-resident of the state and therefore not members in any component society of the state, and physicians resident in the state but for some reason not members of the county medical society where they live or practice, called attention to the by-laws of our Association, which read that membership in a component society should absolutely be essential to membership in state associations. The second matter discussed suggested an improved method of administering the principles of medical ethics. The council felt that there was a widening recognition of the principles and motives behind our professional ethics because of the vast amount of publicity attending the discussion about contract practice, state medicine, and the like. Hence, it becomes more and more a disciplinary responsibility of all component societies for the ethical conduct of their members. Therefore, the Council suggested that it might be necessary for the county societies to extend their prerogative in the exercise of their duty toward thoughtless and indifferent members, and that disciplinary functions resting in the county society should be extended to the state or even national association. This suggestion was made because the Council felt that the present method of procedure of preferring charges of unethical conduct by members of local county societies was very ineffectual because one individual did not desire to place himself on his own initiative in the position of prosecutor. In so doing, it often brought on for himself unfriendliness and antagonism of colleagues, even in that way inviting professional suicide. The council recalled that this problem is similar to law enforcmeent in local communities, states and the nation. If, in enforcement of the law, the institution of proceedings were left to voluntary action of an individual, personal animus would be the controlling motive, and only minor infractions would be handled. Society has found that it needed a system representing society as a whole, or grand jury investigation and indictment, a public prosecutor, and an impartial court with the right of appeal to higher courts. Medicine in this age needs a similar system for enforcement of its ethical and economics principles. So under this setup, it might be advisable to extend the origination of charges in some situations manifestly too great for the county society to handle to the state association, and possibly, in rare instances, to the national association.

During the course of the proceedings of the House of Delegates, there were many other resolutions presented, and suggestions made by various standing committees. Reference committees studied these matters, some of them were recommended as 'do not pass,' while others were passed on to the Board of Trustees for further study and recommendation.

Dr. E. H. Carry reported to the House that he, with President-elect Dr. J. S. McLester, had conferred with leaders of the American College of Surgeons relative to the stand which the College had taken on the question of sickness insurance, and after this conference, the officials of the College had agreed to the action of the House of Delegates of the A.M.A. taken at its session held in Chicage in February, 1935, and that hereafter, the College of Surgeons was going to let the American Medical Association determine policies on sickness insurance.

The final meeting of the House of Delegates was held Thursday afternoon, June 13th, at which time all officers for the coming year were elected, a new Speaker and vice-speaker of the House were elected, as well as two new members to the Board of Trustees. Kansas City was selected as the next meeting place for the national convention.

Respectfully submitted,
J. D. HAMER, M. D.

BOOK REVIEWS

THE COSMIC WAY TO TRUE CIVILIZATION THROUGH PARENTHOOD.

Dr. G. H. Donahue is dead; he left behind a beautifully printed brochure esoteric and euphemistic in character. He tells the world to raise their children with ideals that civilization may improve and wars become a thing of the past. He holds that from their own resources, inherited and self-enhanced, individual human beings must and do build or unbuild their own lives and characters.

In his will he directed that this manuscript be printed and a complimentary copy be sent to hospitals and medical societies—a beautiful thing to have done. May the little booklet yield the influence the doctor had hoped it might.

SCULPTURE IN THE LIVING, Rebuilding the Face and Form by Plastic Surgery; by Jacques W. Maliniak, M.D., Formerly Major, Reconstructive Hospitals, Allied Armies, etc.; with a Foreword by Wendell C. Phillips, M.D., Former President, American Medical Association; The Lancet Press, 80 Lafayette Street, New York; 1934; Price $3.00.

The author regards deformed individuals with great pity and believes that it is a noble work to remove scars and abnormalities in order to develop a more normal state of mind for them toward life in general. It is certain that many persons with correctable defects grow morbid and depressed grieving over their lots. The subjects of several of the chapters are: Repairing skin, reconstruction of the nose, rebuilding the lips and chin, breast repair, deformities about the eyes, the malformed ear, the aging face and form, facial asymmetries, bone carpentry. The book is well illustrated. It seems to have been designed to display what can be done in cosmetic surgery rather than to present methods of doing it.

NATURE'S WAY; The Fertile and Sterile Periods of Marriage; by Victor C. Pedersen, A.M., M.D., F.A.C.S., Author of "The Woman a Man Marries" and "The Man a Woman Marries;" G. P. Putnam's Sons, New York; 1934; $1.00.

There has been considerable interest recently, probably more than usual, in birth control. There are those who believe that any mechanical interference with nature to be wrong but are willing to take advantage of nature's provisions. This little book of 81 pages gives the facts as to the fertile and sterile periods of women. It is said to be endorsed by physicians, clergy and layity. The knowledge of the contents of this book would certainly relieve thousands of married couples of anxiety and of physical as well as mental distress. The author dedicates the book "to those men and women who regard parentage as the noblest purpose of life."

SURGICAL PATHOLOGY OF THE PERITONEUM: by Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas, Professor of Surgery, University of Kansas; 201 Illustrations; J. B. Lippincott Company; Philadelphia, Montreal and London.

The name of Hertzler stands so high in research upon surgical conditions that it is only necessary to state the name of the book and its author and the reader almost invariably will know that the book is an outstanding piece of work. In this book Hertzler has devoted himself to the study of inflammation of the peritoneum. He thinks that a great many conditions thought to be abnormal are in reality not abnormal; what had been regarded as adhesions are really not adhesions.

The printing and the illustrations are superb. The book is especially recommended to surgeons.

METHODS OF TREATMENT by Logan Clendening, M.D., Professor of Clinical Medicine, Lecturer on Therapeutics, Medical Dept. of the University of Kansas; Attending Physician, Kansas City General Hospital; Physician to St. Luke's Hospital, Kansas City, Mo.

This book gives a thorough outline of the approved methods in general practice. Further than of drugs it takes up rest, diet, gymnastics, bacterial-therapy, glandular therapy, dietetics, hydro-therapy, and other miscellaneous procedures.

This book is valuable not only to the general practitioner but to the student and specialist as well.

E. A. G.

A TEXTBOOK OF CLINICAL NEUROLOGY (with an Introduction to the History of Neurology). By Israel S. Wechsler, M.D.; Third Edition reset. Philadelphia and London, W. B. Saunders and Company, 1935.

The new edition of this popular book on Neurology seems to measure up to the standard of the fromer editions in every way. Practically every page has been revised in one way or another; many of the parts have been entirely rewritten. One new chapter—on History of Clinical Neurology—has been added. Any physician who has made use of the former editions of this book knows how practical it is and how terse and clear is the text. The publishers have selected an extra good grade of paper making the book unusually small, and the type is easy to read, so that all in all this is a most practical book for the physician.

THE DOCTOR'S BILL—by Hugh Cabot. Introduction by A. Lawrence Lowell. New York: Morningside Heights, Columbia University Press. Price $3.00.

If I read Cabot correctly he says there is a better grade of medical services available to the American public than the public is at present obtaining—in most instances. The economic problem permeates here and there and everywhere and more than anything else prevents good service. The title of the book "The Doctor's Bill" may be taken literally to mean that little scrap of paper so often destroyed, in anger, and accompanied with the words "the damned robber" or some other such phrase, and hence be emblematic of the economic question. Or the title may be construed in a quasi-legal sense to mean the bill of particulars in the case now in the court of Public Opinion entitled "The People vs. The Care of Their Health."

Cabot says that physicians should be grouped together so that whatever expert services a sick man needs may be given by one specially trained in the illness and at an average fee irrespective of the financial rating of the patient. In the smaller communities the groups will perhaps not have the same high attainments of perfection in rendering service as those in the populous districts may have due to the fact simply that those seeing large numbers of a certain ailment naturally become more experienced. The difference between the two groups, however, will not make much difference, except in the rare case. The matter of working in groups is largely an adjustment of tempera-

ments and a full realization that only by so doing can the highest type of service be consistently rendered.

Having physicians in groups promotes specialization among them and permits two or more needed specialists to work upon a case. The charges will be less than would be if separate consultants had to be called.

Unless the group idea prevails, with an adjustment of incomes without considering work done, the physician whose specialty is internal medicine may be impelled to take care of a case of obstetrics or to remove an appendix because the one hundred or the two hundred dollar fee or both are needed to pay the accrued bills of the past months. Or the surgeon not having collected some of the hundred-dollar fees he has charged feels compelled to treat a case or cases of pneumonia or rheumatism. It goes without saying that these cases vicariously treated may have just as excellent care as though they had been treated by the men especially trained in the treatment of the respective diseases in question. On the other hand we know that every now and then the results in a case treated by the proper expert rather than by the improper expert may be as far separated as are life and death.

Cabot is unequivocally opposed to the sliding scale of charges as now more or less generally practiced by physicians. Quoting, "the custom has tended to act like a burr under the saddle of public opinion." To make up for the few large fees which physicians now get he would have the indigent and semi-indigent have medical attention at the expense of the state. The low income group he would have banded in some sort of an insurance scheme so that they would have the advantage of mutualization of costs not only for medical attention but for hospitalization.

The plans for the coming changes—they are coming, if not almost here, he says—should be made by far-seeing physicians but the execution of the changes or at least the purely economical features should be placed in the hands of those trained in economics. Quoting, "It does not seem to me probable that the public will be prepared to turn over to the medical profession, which, as far as I know, has made no outstanding reputation in the field of finance, the management of the enormous sums which will be involved here."

He would have us realize that the great need at the present time is for thorough organization within the medical profession in order to deal with representatives of the public in an efficient manner; capable members of the profession in a position to devote time and attention to social and economic problems should be selected to represent the profession in discussions with the public.

While physicians more or less generally may disagree with many of the pronouncements and conclusions of the book, it must be remembered that the book is written from as nearly a disinterested standpoint as any physician can have by a physician of no mean attainments. There is plenty of evidence in the book that the author has devoted long hours to the problems of The Health of the People and the economic phases connected therewith. All physicians should read the book.

The Liverpool Medico-Chirurgical Journal: HUGH OWEN THOMAS Centenary Number; printed in Great Britain by Samuel Hill and Sons (L'Pool) Ltd., College Lane, Liverpool, price half-a-crown; J. Murry Bligh, M.D., F.R.C.P. editor.

HUGH OWEN THOMAS of Thomas-Splint fame was wont to say, "I hope I shall not be remembered only as an inventor of splints, for any mechanical fool can do that; the idea to which they give effect is the important point."

I think there is no question but what those who fully understand the Thomas splints also fully understand that Thomas must have had correct physiological principles.

Two brothers were cast upon the shores of Scotland by the waves after a shipwreck. The younger was taken into a farmer's home and reared. His son became Evan Thomas.

At an early age Evan showed unusual ability in healing the ailments and injuries of animals on the farm and soon had an enviable reputation as an animal doctor. The suffering human population then sought his aid and he gained an enviable reputation as a physician, especially as a bone-setter. His recognition that he lacked in not having had an education caused him to have his five sons educated as physicians.

Hugh Owen and John Lewis became widely known as orthopedist and gynecologist, respectively.

The subject of this sketch, Hugh Owen, was educated at Edinburgh and had the good fortune to come in contact with Lister, Symes, Spencer, Simpson and Goodsir. After two years in Edinburgh he went to the University College at London and in 1857 gained membership through examination in the Royal College of Surgeons. He spent a time in Paris after which he returned and entered practice with his father. They soon had a disagreement and he set up in 1859 for himself. He rapidly gained a reputation for work as a bone-setter and had to enlarge his offices and add a work-shop. Before long the streets accommodated the overflow from his offices. He seemed to have an uncanny sense in recognizing the needs of the sore and inflamed joints. He made many of his own splints or supervised their making with the specific purpose of giving joints the needed rest. For dressings he used sawdust bearing bichloride of mercury and phenol.

In 1864 he married Elizabeth, the second daughter of Robert Jones, the grandfather of Sir Robert Jones. The marriage proved completely happy.

Thomas was unorthodox in religion as well as in surgery. He was extremely kind but gruff on the exterior. He made no parade of his charities. He was not a specialist as specialists are known today. Dr. John Ridlon of Chicago described him as follows: "A little man in a clergyman's coat, a smoke-room steward's cap, thick-lensed spectacles and a brindle beard . . ." His pictures invariably show him with a cigarette in his mouth.

Thomas used the principle of Bier's hypenemia at least two years before Bier was qualified as a physician. He wrote numerous articles, not only on fractures and splints, but upon such subjects as intestinal diseases and obstructions. "Principles of the Treatment of Diseased Joints" is probably his outstanding work, although in 1887 to 1890 he pub- of the Upper Extremities" and "Fractures, Dislocations and Deformities of the Lower Extremities."

In 1891 on a return from visiting a patient at Runcorn, a long wait in a cold station, and travel-

ing in a non-heated day-coach caused him to develop a cold and pneumonia which led to his death.

We have been asked to review this number of the Liverpool Medico-Chirurgical Journal for the purpose of calling attention to the plan of the Liverpool Medical Institution to commemorate the work of Hugh Owen Thomas by developing a library on orthopedic surgery. It is the desire that those who read this review and who have done work in orthopedic surgery will send their reprints and books to this Institution.

Medicine in the Middle Ages: DAVID RIESMAN, M. D., Sc. D., Professor of the History of Medicine and Professor Emeritus of Clinical Medicine, University of Pennsylvania, Member, History of Science Society and Medieval Academy of America; Paul B. Hoeber, Inc., New York, $5.00.

One thinks of the Dark Ages as being truly dark, the light of knowledge being completely extinguished. On sober thought, however, one must realize that such could not have been. There must have been those who kept up an interest in learning.

There is a great deal of interest in this book to a medical historian. There are 35 chapters. Among the titles one finds the following: "The Greek Inheritance, Monastic and Clerical Medicine, The School of Salerno, Arabian Medicine, The Jewish Physicians of the Middle Ages, Alchemy, The Rise of the Universities, Anatomy, Vesalius, Surgery, Surgeons and Barbers in Paris, Baths and Medieval Hygiene and Sanitation, Medicine and the Guilds, Medieval Diseases and Epidemics, Leprosy, The Plague, The Flagellants and the Dancing Mania, Syphilis, Paracelsus and The Lay Attitude toward the Medical Profession in the Middle Ages." There are 79 illustrations, many of them rarely seen in other publications.

While I have frequently read of Pope John XXI, who was a physician, I have never come across as good an account of him as is found in "Medicine in the Middle Ages." Petrus Hispanus was born in the second decade of the 13th Century in Portugal which was then more or less intimately connected with Spain. He studied in Paris under Albertus Magnus and in England under Wm. Shyreswood, the great logician. His medical training was received at Paris and Montpellier. He was a man of great versatility. He wrote a book on logic which became extremely popular, going through 48 editions after the invention of printing. His two medical works are: "Thesaurus paperum," a collection of recipes for every known disease, and "Liber de oculo." Both books were standard for several centuries. He was appointed body physician to Pope Gregory X, and thus entered upon an ecclesiastical career. In 1276 he was chosen Pope succeeding Adrian V. He took the name of John XXI, although there had been but 19 Johns in the papal chair before him. Petrus Hispanus was a believer in astrology and yet he was more rational regarding his medical conceptions than were most of his contemporaries. He endeavored to be uninfluenced by superstition.

He occupied the papal throne but eight months, being killed by the falling of a ceiling in his palace.

A number of interesting and strong paragraphs are devoted to the development of the term "Doctor" and the conferring of the Doctorate. The formality of the conferring of the different degrees is described.

To say that the book is by Hoeber proves that it is a work of merit and of art. Unfortunately there are a few typographical errors. In the table of contents, in the title of the 34th Chapter, the word "toward" has an "s" where there should be an "r"; and in the word "hospital" the "s" which should be on the end making it a plural word, is before the "a". There are relatively few errors in the text, however.

To one who is interested in medical history, this book is especially recommended.

EMOTIONS AND BODILY CHANGES: A Survey of Literature on Psychosomatic Interrelationships—1910 to 1933; by H. Flanders Dunbar, M. D., Ph. D., Departments of Medicine and Psychiatry, Columbia University; Published for the Josiah Macy Jr. Foundation by Columbia University Press; New York; 1935.

Psychology is psychology; ;but it also is physiology. Physiology depends upon structure-anatomy —and upon pathology. Therefore, in attempting to arrive at psychosomatic relationships it would seem that perhaps relatively few generalizations may be made and that in the main the problem is individual. As pointed out in the book in the paragraphs dealing with curing of warts by psychotherapy much depends also upon the physician in charge of the case as well as upon the patient and his disease. One man had warts, for example, and he was treated in the clinic by the clinic physicians through suggestion without benefit. He was promptly cured by suggestion when treated by Block in his private office. The mere fact, however, that warts are cured by psychotherapy does not argue for their psychogenesis. The curability of a certain per cent of warts through psychotherapy and the failure of the cure in other cases would seem to suggest inadequate knowledge in our understanding of the physiology and pathology, of warts and, of the human anatomy. So it would seem to be with other problems of medicine. The problem lies in interpreting the psyche as hingeing upon a system of organs—the whole individual—with all intrinsic and extrinsic influences in their proper interrelationships.

The author admits in his chapter entitled "Conclusions" that the time is not ripe for a textbook on Psychosomatic Interrelationships and that it may never be. He says further that the material included in his book belongs in the texts on medicine and not in a special book such as this. The book, however, is interesting reading.

PROCEEDINGS OF THE NEW MEXICO MEDICAL SOCIETY

53rd Annual Meeting Albuquerque, N.M., May 23-25, 1935.

(All business and scientific sessions were held in the Indian Room of the Franciscan Hotel.)

Meeting of the Council was called to order by Vice-President, Dr. George W. Jones (Clovis), at 8:30 a.m.; there were present: Ex-officio members Drs. G. W. Jones and L. B. Cohenour; members Drs. R. O. Brown (Santa Fe), R. L. Bradley (Roswell), C. B. Elliott (Raton), C. A. Miller (Las Cruces), and Carl Mulky (Albuquerque).

Financial report of the Secretary-Treasurer, Dr. L. B. Cohenour (Albuquerque) was read by him as follows:

Balance on hand at annual report July 19, 1934	$1,476.74
Delinquent dues collected from 10 members	50.00
Dues from 11 new members	55.00
Total cash received to May 23, 1935	2,591.74
DISBURSEMENTS	
Chas. F. Beeson, Refund for Doctors Smith and Lander	10.00

Southwestern Medicine for 205 members	410.00
Reporter, 1934 meeting, balance of one-half fee	87.50
Treasurer's Bond for 1934-35	5.00
Reporter for 1935 meeting, advance one-half fee	87.50
Secretary's salary for 1934-35	300.00
Baser Printing Company, 550 two-cent stamped envelopes and 250 letterheads	23.50
Remington Rand, Inc. (Ribbon)	.75
Baser Printing Company, 500 membership cards	3.50
Albuquerque National Bank, Federal Tax from July 19, 1934, to January 1, 1935	.40
Western Union, Re: Naturopathic Bill	11.26
Robert O. Brown, Phone calls for Legislature	3.30
Gilbert & Hamilton, Attorneys, Legislature	75.00
American Medical Association, Directory	12.00
Western Union, Telegram to A.M.A.	1.01
Baser Printing Co., 50 letterheads	2.50
TOTAL	$1,033.22
BALANCE	$1,558.52

OUTSTANDING INDEBTEDNESS

Southwestern Medicine for 206 members	412.00
Secretary's Salary for 1935-36	300.00
Reporter for 1935 meeting (balance in full)	87.50
Treasurer's Bond for 1935-1936	5.00
Approximate total indebtedness	804.50
Expected balance after all bills are paid	754.02

The Secretary-Treasurer's report was approved and accepted as read.

Applications for membership in the Society were presented by the Secretary, Dr. L. B. Cohenour (Albuquerque). (See S.W. Med. July, 1935, p. 255.)

Immediately following adjournment of the Council meeting, the House of Delegates assembled and when called to order by Dr. George W. Jones (Clovis), acting President, at 9:20 a.m., there were present: Officers, Dr. G. W. Jones, Vice President, acting chairman, and Dr. L. B. Cohenour, Secretary-Treasurer; delegates, Dr. R. O. Brown (Santa Fe), Drs. H. A. Ingalls and R. L. Bradley (Roswell), Dr. C. B. Elliott (Raton), Dr. G. T. Colvard (Deming), Dr. C. H. Gellenthien (Valmora), Dr. J. W. Stofer (Gallup), and Drs. Carl Mulky, M. D. Warden, W. R. Lovelace, H. W. Goelitz and C. C. Meachem (Albuquerque).

Dr. Jones introduced Miss Maud von B. Kemp, State Director of the Social Service, F.E.R.A. Miss Kemp stated: At present about 33,000 families are on relief rolls in the State; while it is believed this number will be materially reduced in the near future, there will remain many to be cared for; a better method of handling medical relief than that in vogue at present is desirable. Conferences have been held with Dr. Earp, Director of the State Bureau of Health and others concerning problems that have arisen in this connection, and it was decided to ask the medical group to appoint a Public Relations Committee to handle the medical relief in its own way.

There has never been a percentage of relief money set aside for medical purposes and the amount so spent has been handled as direct relief. If a definite appropriation might be agreed upon for medical purposes, that amount could be taken from the allotment and turned over to the responsible group of medical men and the expenditures could be handled by that group in conjunction with the State Board of Public Health and New Mexico Relief Authority. If it is found that more funds are needed, we might be able to undertake to provide them. That would place the control and responsibility of medical relief in the hands of the medical group. We realize the State Board of Health has not the money and it is not their job to take care of this class of patients.

Dr. R. L. Bradley (Roswell) stated: His County Society had experienced a great deal of trouble over relief work; non-medical groups should not have the right to dispense medical relief regardless of the medical profession. Many receive orders for medical treatment who are able to pay. He was called to see a little girl and when he started to leave the mother asked if she should get an order for the call from the Relief or would he do so. He found her living in a nice five or six-room house, a modern home with telephone, and happened to know that she owned the place next door. The Relief Committee phoned him about the case and he told them he would not take it as a relief case as he knew these people were able to pay a doctor's bill.

Dr. Carl Mulky stated that the Special Committee met with the F.E.R.A. Administration in Santa Fe, on August 31, 1934, and reported:

"A meeting of the special committee authorized by the House of Delegates of the New Mexico Medical Society July 20, 1934, at the Las Vegas Session to confer with the New Mexico Relief Administration relative to changes in the regulations covering medical care to beneficiaries of the F. E. R. A., was held in Santa Fe, New Mexico, Friday, August 31, 1934.

Members of the Committee present were: Dr. W. H. Livingston, Santa Fe, Chairman; Dr. R. L. Bradley, Roswell, and Dr. Carl Mulky, Albuquerque.

The meeting was called to order by the Chairman, Dr. Livingston, at 10:30 a.m. in the State Capitol Building. The Chairman asked Dr. Mulky to report the portion of the proceedings and discussion in the House of Delegates that resulted in the appointment of this Committee.

Dr. Bradley then discussed the regulations governing medical aid, as applied in Chaves County. He said that the schedule of medical fees in the present contract pertaining to office calls, city calls, county calls and obstetrical work was much less than 50 per cent of the usual medical fees charged by the regular physicians of Roswell, and the amounts allowed in many instances were not sufficient to cover the cost of rendering the service. He said that the physicians of Roswell were dissatisfied with this part of the contract between the New Mexico Medical Society and the New Mexico Relief Administration and asked if this schedule could be revised upwards. He stated that in order to relieve themselves somewhat of what they considered a burdensome contract, a group of six Roswell physicians had agreed to divide the F. E. R. A. work, three physicians taking all orders for two weeks and the other three the following two weeks. He said this was only a temporary arrangement and he did not think these physicians would be willing to continue on the present fee schedule.

Dr. Brown explained that the portion of the fee schedule in question was a part of the contract between the New Mexico Medical Society and the New Mexico Relief Administration and had been approved by the F. E. R. A. Administration in Washington and could not be altered without authorization from Washington. Other special medical services not covered by this schedule are paid for according to a special fee schedule agreed upon by a committee of the New Mexico Medical Society and the New Mexico Relief Administration. This schedule is more elastic and the fee allowed depends on the nature of the case treated. This schedule is on file in the office of the New Mexico Relief Administration.

Dr. Bradley, continuing, said that the inability of F.E.R.A. beneficiaries to secure hospitalization when needed worked a hardship on the physicians and tended to result in inefficient medical care for the patient. He said some arrangement should be made whereb patients on the relief list could have proper hospital and medical service.

Dr. Brown replied that the F.E.R.A. Administration did not pay for hospitalization of patients. He said there had been much correspondence with the F.E.R.A. officials on this subject, but that they had been unable to get a change in this ruling. He stated that they, the F.E.R.A., hold the opinion that hospitalization of indigents was an obligation of local communities and did not come within the scope of the relief program. He said that New Mexico was one of the few states in the Union, if not the only one, that had made no state appropriation for this purpose, and that any arrangement for hospital treatment of indigents would have to be made with the local county or city commissioners and the expense borne by local charity funds.

Dr. Bradley further stated that he wanted a clearer understanding of the meaning of the term "indigent" as applied to persons on Federal Relief lists. He said that he had been issued orders for medical service to patients who owned considerable property free from incumbrance and who, in his opinion, were not entitled to Federal aid as indigents. He felt that there was a lack of proper investigation of such cases and that by the issuance of medical orders to such persons the physician was deprived of his legitimate regular fee which the patient in time probably could pay.

Miss Reeves replied that the term "indigent" as applied to beneficiaries of the F.E.R.A. did not necessarily mean that they were actually destitute, but meant that there was demonstrated need of financial or other assistance. She explained that many persons who owned real estate or personal property were unable to raise money and it was the purpose of the F.E.R.A. to give them such assistance as would enable them to retain their property and become rehabilitated in the course of time. She said that the organization of the New Mexico Relief Administration was far from complete at this time and that there still is a lack of trained investigators and that mistakes would undoubtedly occur at times, which would be corrected by future investigations. There was considerable discussion of this subject by different representatives of the New Mexico Relief Administration and members of the Committee, and was emphasized that the regular family physician could probably supply more accurate information as to the actual needs of a family for relief than could any other person, and close cooperation between the local relief administration boards and the physician was urged.

It was further brought out in the discussion that local administration boards frequently did not clearly understand the "traditional family-physician relationship" as emphasized in the contract between the F.E.R.A. and the Medical Association, and that friction and dissatisfaction often arose because local boards failed to recognize this point. Instances were noted where local boards ordered a type of medical service for F. E. R. A. beneficiaries when another type of special service was required, instead of leaving it to the judgment of the physician to determine and furnish the character and amount of medical service needed, as specified in paragraph one of the contract now in force.

A motion was made and carried by the Committee that Miss Reeves be requested to write to the F.E.R.A. in Washington and ask if any changes might be made in the existing contract between the New Mexico Medical Association and the New Mexico Relief Administration. She was also requested to emphasize the fact that there are no charity hospitals in New Mexico and no provision available for hospitalizing indigent cases and ask if the present F.E.R.A. ruling on that question can be changed. Miss Reeves agreed to do this at once.

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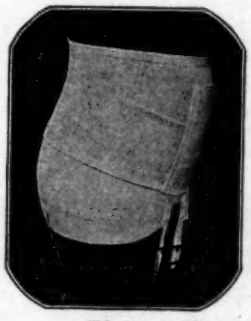

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There being no further business, the Committee adjourned.

W. H. LIVINGSTON, M. D.,
Chairman."

After reading the foregoing Committee report, Dr. Carl Mulky (Albuquerque) continued, stating "That was the only meeting we had."

Miss Kemp arose and stated that she had forgotten to mention that one of their big problems is the care of tuberculous patients who are without finances. We are paying for their board and care, $10 to $35 per month, with no control over the sanitary conditions under which they are living. Many of them are chronics. We have constant demands for medical care for chronics but are not supposed to take care of this type, as they are supposed to be left to the care of the State.

Motion was made that the Committee appointed last year, of which three members are in attendance at this meeting, be instructed to go to Santa Fe, interview the Relief Administration, find out their authority for fixing fees and other matters pertaining to medical relief, and report back to the House of Delegates before the adjournment of this Session. Motion seconded by Dr. H. A. Ingalls (Roswell), and carried.

Dr. W. R. Lovelace (Albuquerque) suggested that the State Administrator, Mr. Frank, be asked to give the Society an hour or so of his time, and made motion that the Secretary phone Mr. Frank and ask him to come to Albuquerque for conference with the Council or House of Delegates, and insist upon his attendance. Motion seconded and carried. Adjournment 10:00 a. m.

SCIENTIFIC SESSION

The scientific session was called to order at 10:00 a. m. by Vice-President Dr. George W. Jones (Clovis), who announced that on account of the untimely death of Dr. C. F. Milligan, President, it became his duty and privilege to take over the office of President of the Society.

Following Invocation by Rev. G. M. Weber, Albuquerque, the Honorable Charles Lembke, Mayor of Albuquerque, in an address of welcome, assured the assembly that "It is a privilege and pleasure to have your organization meet in this city. It seems to me that this is the first meeting I have attended in the last couple of months without discussing ways and means of getting money out of the Government in large appropriations for one thing or another. Perhaps it is very possible for this Association to establish some project for research in medicine that might be started in which we might get a few millions to be spent over a period of years. However, we are very happy to have you here and hope in the arrangement of your program that all of your time will not be taken up with the serious side but that you may have opportunity to visit around and see the city. Our previous Mayor always said when addressing conventions, 'If by chance you run amuck with our ordinances and find your car tagged for overparking, etc., I will take care of it—just call 548'—but he made it a point never to be there. He would also go further and assure visitors that if placed in jail, he would go there and stay with them. He was a pretty good gambler and did not often lose, but Gentlemen! I am not going that far, but I do assure you that you are indeed welcome, that we are happy to have you here, and we hope you will find it possible to get around, see the city, and enjoy your stay in our midst."

Dr. H. E. Rodgers, President of the Bernalillo County Medical Society, also extended cordial greetings, stating that "The Bernalillo County Medical Society has sponsored, formulated and prepared a program which I believe will meet with your approval. We are indeed honored by having with us in addition to our local talent several outstanding speakers and men outstanding in their different fields of medicine. Some of these men have traveled long distances and are prepared to speak to you about their various subjects. I can assure you they know whereof they speak and I want you to attend the meetings, be attentive and assimilative, as they will be of value to you. In conclusion I may say it is my wish that in the not distant future, we will have the pleasure of welcoming you to Albuquerque again."

On behalf of the Society, Dr. C. H. Gallenthien, Valmora, expressed thanks for the very cordial welcome accorded. "Albuquerque," Dr. Gallenthien said, "to all New Mexicans is characterized by its hospitality and good-fellowship. We have had many excellent meetings here and have probably imposed upon Albuquerque and its citizens, but I can assure you that the members of the New Mexico Medical Society consider it a privilege to be here and we will do all in our power to make our stay here as pleasant and comfortable for our hosts as we possibly can."

Dr. Jones, Chairman, suggested this as a fitting time to have a few remarks in commemoration of our deceased President, Dr. C. F. Milligan.

Dr. H. A. Miller (Clovis) in response stated: "As you all know, Dr. Milligan died a few months ago from encephalitis. He was one of our best doctors and surgeons at Clayton—a man with a very high sense of honor and a keen sense of duty. He represented the departing type of the beloved old family physician.. Leaning rather towards pediatrics, he was a force not only in medicine in his com-

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munity, but also in the affairs of the town. I do not know that it is necessary for me in my feeble way to attempt to eulogize Dr. Milligan, as his life's history speaks for itself."

Dr. Jones, Chairman, arising, announced, "It is my pleasure and honor to turn the Chair over to our new President, Dr. C. W. Gerber, Las Cruces, N. M."

Dr. Gerber in reply stated: "It is indeed a great honor to be selected as the head of the medical profession of the State of New Mexico—the highest honor that can be accorded any man by his colleagues. Besides being an honor, it is a great responsibility, and at this particular time I think it is more so than at any time in the history of medicine, as the medical profession has never before been confronted with the situation that is confronting it now. I admire your confidence in having selected me, but I must say that I cannot do anything alone and need the help of every member of the Association. However, I am perfectly willing, if you are, to take off my coat and go to work. I thank you." (For Presidential address see Southwestern Medicine July, 1935, p. 223.)

Malarial Control, the subject of an interesting lecture by Colonel Adams, Sanitary Engineer for the New Mexico State Bureau of Public Health, (pinch-hitting for Dr. J. R. Earp, New Mexico State Health Officer, Santa Fe, who was unable to be present), was graphically illustrated by three reels of motion pictures, showing work which has been done in Dona Ana county during the past few months by the State Bureau of Public Health, with cooperation of the United States Public Health Service and the F.E.R.A., Dr. C. W. Gerber, county health officer of Dona Ana County, being in charge of the work. In five months 49 swamps with 719 acres and 32 ponds with 97 acres have been drained, and with these breeding grounds eliminated, treatment of permanent and necessary drainage ditches has been instituted. The 250 miles of drainage ditches in Dona Ana County, which are treated every two weeks during the breeding season, constitute the largest malarial control project in the United States and the second largest in the world.

"Ovulation—Sterile and Fertile Periods," the title of a paper and a film in illustration, presented by Dr. Cyrus W. Anderson, Denver, Colo., "were not to be construed," said Dr. Anderson, as being in advocation of birth control, but rather an attempt to convey a knowledge of ovulation, sterile periods and fertile periods, and the physiology of fertilization."

Mrs. Margaret Sanger, of New York, was asked to say a few words and told of work being done by the New York Research Bureau for Birth Control. She urged cooperation of the Society in the adoption of a Resolution requesting the House of Delegates of the American Medical Association to initiate a comprehensive program with respect to the study of birth control, instructing its appropriate agencies to undertake the necessary scientific study.

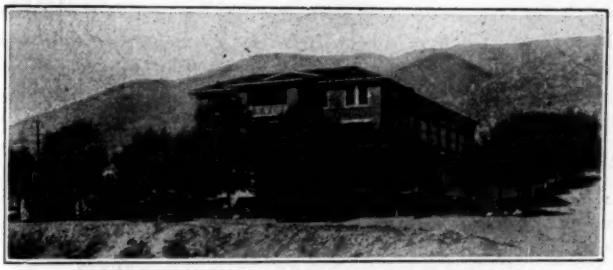
Adjournment for luncheon.

AFTERNOON SESSION, MAY 23, 1935

The opening paper of the afternoon session, "Some Eye Problems of the General Practitioner," by Dr. Martin Green, San Francisco, Cal. (See SW. Med. July, 1935, p. 236.)

Dr. S. L. Haas, San Francisco, Cal., read a paper on "The Treatment of Deformities of Anterior Poliomyelitis." He described some of the operations with motion picture films.

Dr. Robert G. Packard, Denver, Colo., read a paper on "Treatment of Fractures of the Shaft of the Femur in Children and Adults." He showed slides



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of fractures encountered and principle of the traction braces and splints.

The next paper was by Dr. S. R. King, U. S. Public Health Service, Fort Stanton, N. M., on "Avulsion of the Tibial Tubercle."

Discussion of the papers presented during the day was opened by Dr. F. C. Goodwin, El Paso, Texas, and participated in by Drs. R. G. Packard, Denver, Colo., Dr. S. L. Haas, San Francisco, Cal., and Dr. S. R. King, Fort Stanton, N. M.

Adjournment until 9 a. m., May 24, 1935.

Entertainment for members of the Society and visiting physicians was provided in the evening in the form of a Smoker at the Elks' Club. This was well attended and thoroughly enjoyed by those present.

SECOND DAY, MAY 24, 1935

The scientific session opened with an orthopedic clinic conducted by Dr. S. L. Haas, San Francisco, Cal. There was presented a case of general dislocation of the hip in a girl of about seven years of age when first brought to the hospital. Treatment was by closed reduction. "In cases of seven years of age and older", Dr. Haas remarked, "prognosis for good results is not good, for as they grow older reduction is much harder and results become progressively poorer." Other interesting cases were shown and treatment explained, with results noted.

The first paper of the morning was presented by Dr. H. C. Naffziger, San Francisco, Cal., on "Surgery of Hypertensive States."

Dr. H. C. Bumpus, Jr., Pasadena, Cal., then spoke on "Present Methods for Relieving Prostatic Obstructions."

Dr. Albert Soiland, Los Angeles, Cal., read a paper on "Radiation Therapy in Various Surface Lesions."

Dr. G. T. Vinyard, Amarillo, Texas, discussed the subject of "Inflammatory Conditions of the Female Pelvis."

House of Delegates

Meeting of the House of Delegates was called to order at 1 p. m. by the President, Dr. C. W. Gerber (Las Cruces).

Minutes of the meeting of the House of Delegates held May 23rd were read by the Secretary, Dr. L. B. Cohenour, who stated that in accordance with the motion adopted he had called Mr. Frank, State Relief Administrator, on the telephone and had been informed that it was absolutely impossible for Mr. Frank to come to Albuquerque at this time and that Miss Kemp had been authorized by him to act in his behalf.

Motion by Dr. C. A. Miller (Las Cruces), seconded by Dr. W. R. Lovelace (Albuquerque), that the minutes be approved, was carried after slight correction had been made.

ELECTION OF OFFICERS

After reading of the By-Laws by the President to refresh the minds of those present as to the proper procedure, Drs. Carl Mulky (Albuquerque) and C. A. Miller (Las Cruces) were designated to act as tellers, and nominations were requested for the office of

President-Elect

Nomination of Dr. M. B. Culpepper (Carlsbad) was offered by Dr. H. T. Miller (Clovis) and seconded by Dr. H. A. Ingalls (Roswell). Elected.

Vice President:

Nomination of Dr. W. A. Gekler (Albuquerque) was offered by Dr. H. A. Ingalls (Roswell).

Nomination of Dr. George W. Jones (Clovis), present Vice-President, was made by Dr. L. B. Cohenour (Albuquerque).

Motion was made and seconded that nominations be closed and ballot taken. Motion was carried, the ballot resulting in election of Dr. George W. Jones (Clovis) as Vice-President.

Office of Secretary-Treasurer:

Nomination of the present Secretary-Treasurer, Dr. L. B. Cohenour (Albuquerque) was made by Dr. C. A. Miller (Las Cruces) and seconded by Dr. Carl Mulky (Albuquerque). Elected.

Members of Council for Three Years:

Motion by Dr. Carl Mulky (Albuquerque) that the retiring members, Dr. C. B. Elliott (Raton) and Dr. R. O. Brown (Santa Fe) be re-elected for three years, was seconded by Dr. C. A. Miller (Las Cruces) and carried.

DELEGATE TO AMERICAN MEDICAL ASSN.

Nomination of Dr. H. A. Miller (Clovis) was made by Dr. R. L. Butler (Clovis), seconded by Dr. C. A. Miller (Las Cruces). Elected.

(To be concluded in October issue.)

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